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THE

Dental Summary

EDITED BY

L. P. BETHEL, M. D., D. D. S.

KENT, OHIO

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CONTRIBUTIONS.

THE COHESION OF GOLD.*

BY C. A. HAWLEY, D.D.S., COLUMBUS, O.

The practice of good operators has varied much in regard to the character of instruments used for packing cohesive gold. Some have advocated a sharply serrated plugger, some those with fine serrations and others instruments with no serrations whatever but with the condensing surface smoothly polished. The experiments made by Dr. Black a few years ago plainly show that our ordinary gold fillings made in the bicuspids and molars will not withstand as great a crushing force as they are likely to receive in the mouth. Clinical observation shows the same thing, though some of the failure is undoubtedly due to improper preparation of the cavity. In the anterior teeth, even if the strength were not necessary, we should have as perfect cohesion as possible to obtain a filling that will take a smooth fine finish and retain a surface free from pits and scaling. In view of these facts, I have attempted by a series of experiments to obtain some definite knowledge of the value of different instruments for packing gold.

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*Read at the Ohio State Dental Society, December, 1901.

For this purpose I had made a steel cavity block similar to the one used by Dr. Black in his experiments on amalgam. In the first two series of fillings an attempt was also made to test the value of three different forms of gold: pellets, ropes and tape. In the first series twenty-four fillings were made. Three different pluggers were used, one sharply serrated, one with fine serrations and the third polished smooth. The points were rectangular 1-32x1-64 of an inch of exactly the same size. The mallet was a Snow automatic, kept at the same force of blow for each, and the screw governing the stroke marked so that any slipping or accidental turning could be detected at once. The blow in this series was made rather light as the fillings were small and no particular attempt was made to get accurate adaption to the cavity walls. The fillings were made in the square cavities eighty-five by eighty-five one-thousandth of an inch.

Twenty-four lots of gold of two grains each were weighed out, twelve lots of No. one-half cylinders and twelve of tape gold. The tape was made by folding No. four foil until it was sixteen leaves thick and cutting to a convenient width for the cavity. The same manufacturer's gold was used in all the experiments. It was all well annealed on a sheet of mica over a small Bunsen burner and the annealing made as uniform as possible. The fillings were started by covering the entire bottom of the cavity, using hand pressure with the same point that was to be used throughout the filling. Two hundred and eight blows were given each filling. In the fillings made with pellets I found that each lot had thirty or thirty-one pellets. Twenty-six were set aside for malleting, and the remaining four or five, as the case might be, used for starting. Eight blows were used on each pellet, making the two hundred and eight in all. The tape gold was cut into pieces about an inch long and in using folded back and forth with the plugger after the usual manner of manipulating this form of gold. The pieces were counted and the two hundred and eight blows distributed between them evenly. Eight fillings were made with each plugger, four with pellets and four with tape. The amount of gold had been so adjusted that the cavities would not be quite full, thus preventing any overlapping and consequent liability of destroying the serrations of the point on the hard tempered steel of the block. As soon as a filling was made it was removed, the uneven surface left by the plugger dressed smooth with a fine file and placed in a small pasteboard box, numbered and record made. It was assumed that the cohesion obtained would show by the density or specific gravity. The specific gravity of cast or hammered gold has been determined at 19.4 and the difference between the specific gravity of the filling and 19.4 would show the amount of air space it contained.

The specific gravity of the fillings was determined by Prof. F. A. Fish of the Ohio State University. It was found that the usual method of determining specific gravity by weighing in distilled water was not available as the difference in the amount of water displaced by the fillings was so small that it could not be calculated. So the method of finding the volume in cubic millimeters and dividing by the weight in milligrams was used. Each dimension was carefully taken with a micrometer, the filling weighed and the specific gravity thus calculated. The results are shown in the following table:

SERIES I.

No.	Kind of Gold	Kind of Plugger	Specific Gravity
1	Pellets	Sharp serrated	14.1
2	Pellets	Sharp serrated	13.4
3	Pellets	Sharp serrated	13.8
4	Pellets	Sharp serrated	13.9
5	Tape	Sharp serrated	14.5
6	Tape	Sharp serrated	14.0
7	Tape	Sharp serrated	13.7
8	Tape	Sharp serrated	14.2
9	Pellets	Fine serrated	14.3
10	Pellets	Fine serrated	14.4
11	Pellets	Fine serrated	15.2
12	Pellets	Fine serrated	15.3
13	Tape	Fine serrated	14.5
14	Tape	Fine serrated	14.3
15	Tape	Fine serrated	15.0
16	Tape	Fine serrated	14.8
17	Pellets	Smooth	15.4
18	Pellets	Smooth	14.8
19	Pellets	Smooth	15.6
20	Pellets	Smooth	15.6
21	Tape	Smooth	15.1
22	Tape	Smooth	16.1
23	Tape	Smooth	15.8
24	Tape	Smooth	14.8

Average, sharp serrated	13.9
Average, fine serrated ...	14.7
Average, smooth..............	15.4
Average, pellets.......	14.5
Average, tape............... ..	14.4

It will be seen by the table that while the difference in the fillings is not large yet the density of the fillings increases steadily as the sharpness of the serrations decreases and is greatest in those made with the smooth instrument. Note also that the specific gravity of the densest of those made with the sharp serrations is lower than the lowest of those made with the smooth plugger.

As for the test of pellets and tape the difference is so small that advantage can scarcely be claimed for either. I noted, however, in making the fillings that they were so small that one was rather at a disadvantage in using tape as it was somewhat difficult to fold it back and forth smoothly.

In the next series of six fillings the same pluggers and the same methods were used except that new slides for the block were made, having two round cavities nine sixty-fourths of an inch in diameter. One of the cavities, the one in which the fillings were made, was eleven sixty-fourths of an inch deep, and the other, which was used only to hold them while the surface was dressed smooth, was seven sixty-fourths deep.

Two fillings were made with each plugger, one with tape and the other with ropes of gold. The ropes were cut into pieces about an inch long and were made by rolling about one-fourth of a sheet of No. four foil. Eight grains of gold were used in each filling and six hundred and twenty blows struck. The mallet was set to a little harder blow. The results are shown in the following table:

SERIES II.

No.	Kind of Gold	Kind of Plugger	Specific Gravity
25	Tape	Sharp serrated	13.8
26	Ropes	Sharp serrated	15.9
27	Tape	Fine serrated	16.1
28	Ropes	Fine serrated	14.7
29	Tape	Smooth	16.8
30	Ropes	Smooth	16.0

Average, sharp serrated plugger	14.8
Average, fine serrated plugger	15.4
Average, smooth	16.4
Average, ropes	15.55
Average, tape	15.56

The averages of these fillings show again the density of the fillings increasing as the serrations decrease. The test of the different kinds of gold is again negative, indicating that with the same manipulation the form in which the gold is used has nothing to do with the density of the filling.

Another series of six fillings was made in the same cavity slides. The test of the different forms of gold was abandoned and all made of No. three-fourths pellets. Seven grains of gold were used in each filling. Nine hundred and ten blows were struck each filling or fourteen to each pellet after the filling was started. As the points one thirty-second by one sixty-fourth of an inch were rather small for the cavity nine-sixty fourths of an inch in diameter, the points were changed and two of bayonet form, such as are in general use, were selected at the Dental Depot. One of them was ground smooth and polished. The faces of each were round and exactly three sixty-fourths of an inch in diameter. The blow of the mallet was again slightly increased in force. The result is shown below:

SERIES III.

No.	Kind of Gold	Kind of Plugger	Specific Gravity
31	Pellets	Serrated	13.5
32	Pellets	Serrated	12.7
33	Pellets	Serrated	12.3
34	Pellets	Smooth	16.1
35	Pellets	Smooth	15.3
36	Pellets	Smooth	14.9

Average, serrated point 12.83
Average, smooth point 15.43

As will be seen by the averages this series presents the most decided difference between the smooth and serrated pluggers.

It will be noticed in the first series of fillings that the density is not very high and also not as uniform as might be expected. In the way of comment on this fact I might say that the mallet was not set to a very hard blow and it is not the instrument I would select to make a very dense or uniform filling. It was selected for these experiments because it is the only one in which the force of the blow can be made uniform. The density of the last series of fillings was especially disappointing. The blow was about as hard as could be used in the ordinary case on the teeth and fourteen blows to the pellet ought to make pretty thorough condensation. It is possible that the more thorough malleting with the serrated plugger comminuted or broke up the gold instead of promoting cohesion, but this would not be the case with the smooth plugger. We must remember too that the size of the pluggers was about doubled.

These results as a whole point to the conclusion that serrations have no value so far as the cohesion of the gold is concerned. Cohesion is a molecular force acting at insensible distances between the molecules of a substance, and the more smoothly and closely the surfaces or particles are brought together, the stronger the cohesion. Anything that comminuates the surface lessens the force. The use of serrations then, in a general way, is limited to the prevention of the instrument from slipping, especially in pluggers in which the condensing face works at an angle with the handle. They should in all cases be as fine as possible.

The fact that gold will weld in the cold state is due probably to its lack of oxidation and its softness, which makes it possible to drive its particles into such close adaptation that the two surfaces come within the range of molecular force. Lead and tin are soft and have cohesive properties when freshly cut, but a coating of oxide soon forms on contact with the air which interferes with the close adaptation necessary. Tin retains this property longer than lead.

There is one instance in which sharp serrations will assist in the union of two layers of gold. This is in the case of noncohesive gold or gold which has become slightly moist and refuses to stick. We have in each of these cases a coating on the surface which interferes with cohesion. Here the sharp serrations will drive through one layer into the other and bring the fresh cut and uncontaminated particles together. There is probably some mechanical union also. The workers of non-cohesive gold found that deep sharp serrations effected a union of this kind between the layers of the non-cohesive gold.

In the beginning of these experiments I thought that perhaps the density of the fillings could be shown by rolling them out very thin and examining the texture of the resulting plate. For the purpose of preliminary testing I made two fillings in the square cavities, one by hand pressure with a serrated plugger and the other with a smooth plugger and hand mallet. The first tested specific gravity 13.1, the second 17.3. Very little difference could be seen after rolling out. The pressure of the rolls seemed to make the condensation uniform.

In making the filling with a hand mallet my assistant was instructed to use about the same force of blow as in ordinary work in the mouth. A plugger one thirty-second by one sixty-fourth of an inch was selected and I judge that the blow would be less painful on a tooth than the blows of the automatic used in series II. The great increase in the density of the filling indicates that there may be some principles worth considering in regard to mallets, though I regret that I have at this time no experiments to prove them.

In the first place, while it requires considerable force to condense gold well, we are constantly reminded that we are dealing with a living sensitive organ, and the amount of force that can be exerted upon it without pain is limited. So we must exert this force upon the gold with the least possible shock to the tooth.

As to the size of the point, while it must always be large enough to drive the gold before it and not penetrate, yet any increase in size beyond this point decreases its effectiveness before given a fixed blow, the penetrative force decreases as the area of the surface of the point increases. So the point should be kept as small as possible without penetrating the gold.

Now, what kind of a blow will have the greatest condensing effect? When two masses of matter come together the motion of one is imparted to the other in proportion to the momentum of each. The momentum is the product of the mass by the velocity. A ball struck by a bat has an amountof motion imparted to it in proportion to the weight and velocity of the bat. Given the same mass the energy of the blow or the work done is proportional to the square of the velocity. The penetration of a rifle ball is increased not as its velocity but as the square of the velocity. If the velocity of the ball is doubled the penetration is increased not twice but four times. Applying these simple principles of physics to the mallet in its work in condensing gold we should have a light mallet with a blow of high velocity. The mallet should be light so as to impart to the tooth but little of its own motion and the velocity should be high to increase as much as possible the work at the point of the plugger on penetration. That the work can thus be rendered great without imparting motion to the object struck we see in firing a pistol ball through a pane of glass. If the velocity of the ball is very great a smooth hole will be cut without otherwise breaking the glass, but if the same ball be thrown from the hand the glass will be shattered.

The profession has recognized for years the superiority of the hand mallet for condensing gold. In this mallet we have the blow struck at the end of a long handle, a lever of the third class which gives great swiftness of motion. In most of the automatics that have come into general use we have a steel plunger for a mallet, actuated by a spring and moving up and down inside a metal tube. The friction of the plunger on the sides of the tube and the direct action from the spring prevent a sharp, quick blow. In looking over the sixty or more patents that have been granted for different forms of automatic mallets we find a constant effort to devise some appliance that will give a blow similar to that of a hand mallet.

So far those that have succeeded have been too unwieldy to come into general use and have been superseded by those in which the neat appearance and convenience has overbalanced the faulty character of the blow. Of the several engine mallets which have been patented and placed on the market those have been most successful that lift the hammer freely from the plugger and return it with a sharp quick impact. Those that have been made upon the plan of the pushing force of a cam or a series of inclined planes have failed. The blow has not the necessary velocity. Elasticity in a mallet destroys, or reduces by so much as it is elastic the force of the blow, by increasing the time of the impact. The reaction of the elastic substance reduces the energy by carrying the blow over a longer period of time and is thus a serious defect.

For hand use we must have a mallet of considerable weight because we cannot accurately deliver a blow with great velocity by hand. Steel is an excellent material for a mallet because of its hardness and inelasticity, but it must be used with great accuracy and skill that its smooth surface in contact with the polished end of the plugger does not give a glancing blow, which is of course undesirable. For this reason the lead filled mallet is often used, as its soft surface prevents any glancing and it is not elastic. Lead and tin in equal parts makes a composition that is harder than lead, and yet not so hard that a blow from it is likely to slip, and is preferred by many operators.

The electric mallet, so far as the blow is concerned, is probably the best we have. The blow is of very high velocity and the hammer of steel has no elasticity, so we should have very little of its motion imparted to the tooth. Clinical use shows this to be true, for it is well known how gold can be built along frail walls with this mallet without fracturing them. Unfortunately its unwieldy form and high cost greatly limits its use.

A SUCCESSFUL METHOD OF OBTAINING A PERFECT MATRIX FOR PORCELAIN INLAY WORK.

BY DR. H. J. BOSART, SPRINGFIELD, O.

The foundation of perfection in inlay work is the obtaining of a perfectly fitting matrix of the cavity and the retaining of its exact shape until the process of investing and baking is finished.

Every worker of porcelain inlay also recognizes the need of a more certain method for obtaining a perfect matrix than present methods will produce.

I will present the following, which has been a success in my hands.

If an approximal cavity, the teeth should be separated to give plenty of space for the manipulation of matrix as well as for isertion of finished inlay.

Better results are possible throughout the course of the work if the rubber dam is used; but the color of tooth should be selected before placing the dam.

First prepare the cavity for the making of the matrix by trimming the edges to the extent deemed necessary, leaving them perfectly square, sharp and smooth, avoiding undercuts where they would prevent easy access, which can often be done by leaving some of the more solid decay; if this is not practicable, fill under the overhanging enamel with cement. When hard, shape cavity, giving it parallel sides; thus making the removal of a perfect matrix easy, whereas it would be impossible if undercuts existed.

After matrix is completed remove the remaining decay, and undercut cavity to retain finished inlay. Number 30 gold foil or a combination foil of platinum and gold makes the best matrix, as it is softer than platinum, being more easily moulded to the irregularities of the cavity; this method for removing from cavity and handling, so stiffens the matrix and renders impossible a change of shape, no matter how large or complicated the cavity.

Select piece of foil of sufficient size. With a pellet of cotton work well over bottom of cavity; then hold and work from there out to edges until foil is perfectly fitted to cavity; then bring foil out over tooth and hold with fingers or stick to tooth with Canada Balsam dissolved in chloroform. As the case would indicate place in the cavity of the matrix—to facilitate removal and handling—either the point of a broach with a slight bend forming a hook, or a bit of floss silk with a knot at the end.

Now fill the matrix with "Hill's Temporary Stopping," using as much care as in putting in a gutta-percha filling. The more care used in placing filling the more perfectly the matrix will be conformed to the shape of cavity.

This filling hardening makes an unyielding support to the matrix, precluding the possibility of a change in shape during the process of removal from cavity and investing of matrix. By the aid of the previously inserted broach or floss silk, filling and matrix are easily removed and invested.

Mix the investment plaster with water to the desired consistency and place in the baking tray sufficient to imbed the matrix, slightly tapping the tray to settle the matrix in investment, allowing it to cover the free edges but not quite reach the cavity line. To insure expulsion of air bubbles carefully coat the reverse side of matrix with the mixed investment plaster before embedding.

When investment is hard warm sufficiently to soften the temporary stopping, which can then nearly all be removed by the broach or floss silk. What remains wash from matrix with chloroform. The chloroform will not soften or effect investment.

Fill the cleansed matrix with the selected enamel and bake in the usual manner with the full assurance that the finished inlay will be a perfect fit.

PRESIDENT'S ADDRESS.*

BY H. F. HARVEY, D.D.S., CLEVELAND, OHIO.

For the objects set forth in its constitution the Ohio State Dental Society has met for its thirty-sixth annual meeting.

It has been customary for the presiding officer of this body to present an address at the opening session, partaking largely of the suggestion of ideas that might possibly be utilized for the betterment of the society, and what I have to offer at this time will be in conformance with this custom.

One year ago, when escorted to the president's chair, I endeavored to thank the members of this society for the honor conferred upon me, and for that honor and support given during the year, I wish to again express my thanks.

I wish also to thank the various committees for the work they have done, especially the Tri-State, Executive, Clinic, and committee of arrangements, for I feel that whatever degree of success may have attended our part at the Tri-State meeting, or that may attend this, is largely due to their efforts. In fact, I believe that the success, not only of a single meeting, but the general character, growth, and prosperity of any society depends, not only upon its individual membership, but upon the work of its committees. The responsibility of the presiding officer, therefore, is to a very great degree in his appointments. It should be borne in mind, however, that the committees must have the support of the membership for the successful accomplishment of their purposes.

I believe the work of the society can best be carried on by a system of standing committees, in the personnel of which there should not be more than one change each year for a committee of three, and not more than two for a committee or five. This gives them a chance to continue work along lines familiar to a majority of the committee, to distribute the work of the society, and furnishes the opportunity of supplying a little new motive power each year.

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*Read at the Ohio State Dental Society, December 3rd, 1901.

What has been accomplished during the present year may be summed up by reports of the various committees. I do not wish to anticipate or supplement these reports, but trust they may be such as will furnish encouragement to the society, for continued efforts in its undertakings for the benefit of its members, and the elevation of the profession.

The passage of the army reorganization bill, providing for the service of dental surgeons in the army and navy, is gratifying, and now that the service is established, its usefulness and honor must be sustained by the character of those appointed to such positions, and in order that we may keep in touch with this service, I would suggest the continuation of a committee on Army and Navy.

A few words in reference to the legislative and membership committees may not be untimely. I refer to these because it seems to me that work through these channels requires the most serious consideration of this society at the present time. Under existing conditions I realize that the legislative committee have a hard proposition, in an effort to secure a reasonably just law, or in fact any other than a very bad law, and I feel that before we can hope to accomplish much in the way of better dental legislation, we must have the individual influence of our membership to support this committee, at least to the extent of having the representatives of their locality informed before they go to the legislative hall, as to what we wish, need, and should have. If this can be done, it seems to me that the way, in a great measure, would be prepared for the committee to get their support.

In this connection I would remind the committee of the suggestion made in the address of your presiding officer two years ago in regard to the exemption of dentists from jury duty.

Under our present system of payment of dues it is somewhat difficult to tell exactly how many active members we can claim, but of the total number of dentists in the state, only about ten per cent, or something over two hundred, are identified with this society, and out of the eighty-eight counties there are eighteen or twenty from which we have no members. This representation is far below what it should be, and brings us to the consideration of another problem not easy of practical solution—viz: How may we increase our membership? I would recommend that the number of the membership committee be increased to six, and be appointed in accordance with a previous suggestion in this paper so that the chairman may remain for a term of years, and that they be requested to formulate, and put into execution some plan of action whereby our membership may be increased to a more representative state organization. With this accomplished we may hope to secure better legislation, better attendance at our meetings, and a better balance in our treasury.

While I feel that the business and finances of this society might well be left to the thoughful care of the board of directors, I would suggest that steps be taken toward the creation of a surplus fund, the interest of which in a few years might become sufficient to pay the necessary annual expenses of the society. This would not take a large sum, and I believe could soon be realized. We would then be in a position to spend more money on our program, by bringing men of note to present papers, or clinic on matters of interest along special lines.

With this condition once established, I believe the receipts from new members would be sufficient to maintain the society without annual dues, or at least to reduce the dues to a nominal sum.

This is the basis of the support that should be given the membership committee. When this is done I believe our society will include in its membership representatives from every county in the state.

I realize that it is easy to overburden the society with suggestions difficult of practical execution, but before closing I wish to speak of one other matter concerning the welfare of the society.

It has doubtless occurred to many of those present, and especially those who have taken any active part in the work of the society, that it is a very difficult matter to get the members together at the hour appointed for the opening of sessions. There seems to be no reason for this, except that each waits for the other with the thought that it is needless to be prompt. This is all wrong, and should be remedied. I would appeal to each one individually to try and bring about a reform in this respect by being present promptly at the appointed time for the opening of each session. It is not justice to the executive committee, or to those who have prepared a part for our program to be obliged to wait half an hour or more beyond the appointed time for a respectable number of the members to assemble. The time thus becomes limited, the discussion often necessarily cut short of what it should be, and possibly some papers not presented at all for lack of time, which in reality has been lost at the opening of sessions. If it is true that we are here for mutual benefit, it is the duty of each one to try and remedy this existing evil, in order that we may enjoy to the fullest degree the short time set aside for this purpose.

REPORT ON PRESIDENT'S ADDRESS.

Your committee to whom was referred the president's address beg leave to report that it contains many valuable suggestions which it would be well for our society to seriously consider.

1st. There should be a system of standing committees in which there should not be a change of more than one for a committee of three, and not more than two in a committee of five.

2nd. The committee on Army and Navy should be continued, so as to promote the introduction of dentists into the Navy.

3rd. Members should assist the membership committee in securing good names to be presented for membership; also that the number of the membership committee be increased to six or eight.

4th. The creation of a sinking fund is certainly desirable and appeals to good business management.

There are other good suggestions but we believe that the above can be made of practical value.

All of which is respectfully submitted,
H. L. AMBLER,
F. R. CHAPMAN,
G. S. JUNKERMAN.

ODONTOMES.*

BY THOMAS L. GILMER, M.D., D.D.S., CHICAGO, ILL.

Odontomes are excessive growths of tooth tissues in heterogeneous mass, springing from abnormal teeth. They are exceedingly rare and have not been studied to any considerable extent. Some attempt has been made to classify them. Broca called them odontome embryoplastiques, coronaries and radicularis. Sutton classified them according to the tissues from which they took their origin; epithelial odontome from enamel organ; follicular and fibrous odontomes from the tooth follicle; cement, from cement organ and compound follicular from both, radiculose from the papilla, and composite from the whole germ.

We should not class as an odontome a tooth having an excessively developed crown or root, or a tooth having a tumor on the side of its root, or one having an enamel drop on the side of its root. A tooth more or less perfectly developed which is incisted in a thickened follicle is not an odontome, nor a tooth which is incased in a calcified bony wall. Multiocular cysts of the jaws or excementosis of the root, or impacted or unerupted supernumeraries can not be properly classed as odontomes. In other words a tumor caused by a tooth is a very different thing from a tumor composed of tooth tissues, however well marked or heterogeneously the structure may be arranged.

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*Synopsis of a paper read at the meeting of the National Dental Association, August 8, 1901, in Milwaukee, Wis.

A tumor caused by a tooth may not have any tooth structure.

Growths composed of nests of aberrant teeth or forms included in follicular cysts are questionable odontomes. They are usually known as dentigerous cysts. Sutton classes them as compound follicular odontomes.

A mass of imperfectly formed and diminutive teeth held together by an imperfect cement might be called another class of odontomes.

The composite odontome of Sutton is made up of a mixture of more or less enamel and dentine, with no surface indications of tooth forms, but microscopic sections show the dentine and enamel in true relation. These three kinds do not arise directly from the germ of the normal tooth, but are doubtless developed from some part of the tooth germs of the normal set, which has segregated in an interrupted development of the normal set. We have no definite knowledge, of course, as to the manner of their development, our conclusions are logical deductions or speculative. Dean in his work on the dental follicle, says they might arise from the unatrophied portion of the cord. Dr. Black thinks they may arise from the extra buds occasionally thrown out.

Dermoids in some parts of the body are caused by the inclusion of epithelial tissue in the folds of the mesoblastic layers in foetal life. These cysts may have a similar origin, but they can not be called truly dentigerous cysts.

Our literature does not record more than twelve or thirteen specimens. They may be found in either jaw, usually in the distal portions. They develop in early life and are usually observed before twenty-five years. They are usually encysted in a follicular wall. In some cases the particles of the cyst are shaped like teeth, and in others they are without definite form. If like teeth they are diminutive, and of the cuspid or bicuspid form.

A microscopic section of an odontome, reported to the

Illinois Dental Society in 1879, shows all the tissues of a normally developed tooth, but in a state of confusion. The arrangement of the tissues is peculiar; it is as though a great number of diminutive teeth were packed together and the interstices were filled with enamel or dentine tissue. In places where the section cuts the tooth axially these diminutive teeth will appear with a distinct pulp canal, dentine and enamel in proportionate relations, but generally of irregular form. Many of the pulp chambers seem to be filled with calcospherites.

Heretofore it has been difficult to diagnose an odontome, but with the X-ray and sharp steel probes it ought not to be a difficult matter to distinguish and locate them, so that their removal may be easily accomplished.

A BRIDGE SPLINT FOR DESPERATE CASES OF PYORRHEA.*

BY W. B. AMES, D.D.S., CHICAGO, ILL.

By desperate cases the author refers to those cases where the teeth have loosened because the periosteum and alveolar bone has been so extensively absorbed that there is no prospect of ever restoring them to a stable condition, except by some means of tying several of the teeth together, by ligatures, bands or splints. The ligatures even when confined to position by means of the various cement propositions are entirely useless, as they are unreliable and short-lived at best, and difficult to keep in a sanitary condition.

The essayist illustrated his idea by treating an ideal case. It was a case where the lower incisors had been badly affected by pyorrhea and the cuspids not so seriously, but still there had been considerable loss of peridental support. The crowns of these six teeth were sawed off at the cervical portion, or at the point of the gingival attachment in health. The pulps all removed and their roots filled, and the soft and adjacent bone tissues brought to as good a condition of health as possible. Then gold bands a trifle more than an eighth of an inch wide were made and adapted to the stump of each tooth, allowing the band to embrace the root for one-sixteenth of an inch and to project above the end of the stump for a sixteenth of an inch; a plate of gold was then fitted inside of the band and to the end of the root; a post was then set into the root canal through a hole punched in the cap and the whole soldered together, making a cap and post like the one used in making a Richmond porcelain crown, except for the band projecting above the cap or end of the root. The post is also permitted to project above the root end an eighth of an inch or more if practicable. The natural teeth crowns which have been sawed off then have their pulp chambers drilled out and they are fitted into the band socket and to the end of the post. The gold bands and posts are then fitted to place on the stumps of the roots and an impression removes them so that they may be united by soldering. When soldered together the bridge is finished and cemented to the stumps. The crowns are then adjusted each to its proper place and cemented to the bridge. The result is artistic and if well done a substantial-appearing piece of work. The gold bands showing at the cervical borders and having the appearance of well-fitting single bands. The porcelain crowns can be used when desired by using tube or countersunk teeth.

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*Presented at Ohio State Dental Society December, 1901.

The claim for this method is that the roots of the teeth are held more rigidly together, and treatment can be applied to restore lost structure and a normal condition of the gum and process. And the pulps having been removed from the teeth there is none of the usual hypersensitiveness of the teeth or uncontrollable neuralgias.

ADAPTING OF FACINGS AND PLATINUM POSTS TO PORCELAIN CROWNS WITHOUT SOLDER.*

DAVID STERN, B.S., D.D.S., CINCINNATI, OHIO.

This is simply a Richmond crown in which the solder is replaced by a porcelain body. It is a modification for the purpose of simplification of the process described by Dr. Gilbert in the Dental Cosmos of July, 1901. It is as follows:

After the tooth has been ground to the gingival border and the root canal prepared as for a Richmond crown, the root is banded with a narrow piece of platinum plate and soldered with platinum solder (75 per cent gold and 25 per cent platinum), and to this the floor of the cap is soldered, platinum solder again being used. After this, no solder is required to finish the crown. The cap being placed in position on the root, the floor of the cap is perforated in line with the root canal or canals, as the case may be, and the anchor post inserted; one for an anterior tooth and two for a bicuspid. The labial post must extend beyond the cap sufficiently to come between the pins of the facing. Next the impression and bite are taken and the cap with post in position mounted upon the articulator. The facing is then adjusted and held in position by beeswax. In this condition the crown is invested and the wax is removed by means of boiling water. This wax is replaced by a high fusing porcelain body, which after baking will match the facing in color. After this body has become sufficiently dry and modeled to the correct shape for occlusion, it is placed in the oven which is used for fusing porcelain bodies.

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*Given as a Clinic at Ohio State Dental Society December, 1901.

A METHOD FOR MAKING GOLD FILLINGS IN PORCELAIN TEETH.*

BY OTTO ARNOLD, D.D.S., COLUMBUS, O.

Dr. Otto Arnold demonstrated a novel method for making so-called gold fillings in artificial (porcelain) teeth by the use of china decorators' gold paint.

The tooth is prepared by grinding off the enamel at the desired spot to a concave shape to afford thickness of material, and with well-defined margins to allow of a proper finish.

A thin coating of the gold compound is applied to the prepared surface with a brush, after which the tooth is fired in a gas or electric furnace. When cooled remove and a layer of gold will be visible where the compound was applied. If this layer covers the surface uniformly, gold foil or pellets can be made to cohere to it under similar conditions that obtain in ordinary gold filling operations.

The advantage of this process is being able to produce artistic effects without materially weakening the artificial tooth as in the case when undercuts for retention are made. This process may also be utilized for porcelain inlay work, using amalgam as the retention medium.

A METHOD OF MODELLING AND SWAGING CROWNS.†

BY E. BALLARD LODGE, D.D.S., CLEVELAND, O.

The method employed by me is this:

Upon the end of a piece of hickory five inches long and one inch in diameter I place a lump of wax known as "Adamant Wax," this should be not larger than a hickory nut of medium size. Heat this in the Bunsen flame until plastic and model with a cold wax spatula into the desired form; chill in a tumbler of cold water for a few seconds. Now use hard cold paraffine encased in a ring of iron; a wagon hub rim does nicely to hold the wax. Place gold plate of proper size and gauge upon this and with the modelled cusps as a die drive with a hammer into the paraffine, thus swaging the gold accurately and easily.

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*Given as a clinic at Ohio State Dental Society, December, 1901.

†Given as a clinic at Ohio State Dental Society, December, 1901.

INTERNATIONAL DENTAL FEDERATION: FIRST GENERAL MEETING, HELD AT CAMBRIDGE, ENG., AUGUST, 1901.

(Continued from page 574.)

CONFERENCE.

In the afternoon a conference was held in the Trinity College Hall, over which Sir Michael Foster presided.

The following address on "Dental Education" was read by Dr. Joseph Griffiths (University Reader in Surgery):

Sir Michael Foster and Gentlemen—I feel this is an occasion for introducing what I am about to say with apologies, because neither am I a dentist nor indeed do I know, except in very general terms, anything of the education of a dentist. But, as I have been asked to speak upon the subject now under consideration, I beg you will grant me that indulgence which you, tried by meetings and speeches during the last week, must be pretty well accustomed to exercise, and which I trust you will freely bestow upon me and the matter of my remarks. As, however, I represent the sister art of Surgery in this university, and am engaged in the teaching of the art as well as the science upon which the art is built up, I may be allowed to have a small say in the matter of the education of the dentist. This subject is not new to me, thanks to Dr. Cunningham, who has on many occasions brought it before me for discussion on the main principles which should guide in the bringing up of the dentist. As I have said before, I know nothing of the work of the dentist except in a general sort of way, which I gather on the occasions when I seek his advice and aid, and all I can hope to bring to the discussion of this interesting subject is the *point of view* of the surgeon, who is in one sense the father of the dentist, he being even now capable by law of undertaking if he chooses the practice of dentistry.

Now, I believe I am correct in making the following statement,—that the dentists are divided among themselves as to the best means to adopt whereby they themselves can be best educated; and, broadly speaking, they are divided into two sections. To both sections, however, the desire to produce the best dentist is common, and each section naturally thinks it has found the right way. So far as I am able to gather and understand, this difference between the two sections may be expressed in the following manner: One section desires that every dentist shall be trained as a medical man is, and then take up dentistry; whereas the other section desires that a dentist shall be trained to his own profession from first to last. (Before we proceed any further, I think it would be well for me to state that all I am about to say applies to the average, and not to the exceptional dentist.) To emphasize this proposition, let us put it thus: One section desires dentists to be qualified medical men who have, as it were, taken up dentistry as an afterthought, and the other wishes for a dentist from start to finish. According to the former, the man would be given a general medical education, and it can be estimated at nothing more, to base his future practice of dentistry upon; whereas according to the latter he would be given an education upon which his future work directly depends.

Is the education of a dentist to be that of a medical man with dentistry added on, or is it to be designed to meet his own requirements? is the question of the hour.

To help in the solution of this interesting problem, a brief comparison between the training of the medical man and of the dentist may not be out of place. In the case of a medical man the first half of his educational career is spent in gaining a complete knowledge of the normal man, and he takes biology, chemistry, and physics as introductory subjects to anatomy and physiology. This is done in order to give him a better understanding of the structure of the body in detail and of the functions of its several organs and tissues. The second half is spent in acquiring all that is known of morbid changes and abnormal functions, and in a training in the physical examination of any and every part of the human frame. In the earlier half, he is trained in methods adopted in the different subjects for eliciting knowledge, and in the second he is directed to employ the methods with which he is already familiar to determine as far as possible the physical condition of any or every part of the body.

On the other hand, in the case of the dentist the first period is spent in acquiring knowledge of the nature and of the mechanical properties of certain materials and in the training to perform accurate work, which must be done, so I understand, to a nicety,—a training similar to that of a mechanician. In the second period he is directed to acquire a general knowledge of the structure of the body and of the functions of its several parts; a minute acquaintance with the teeth and the jaws, and of the diseases they are liable to; with the application of the methods, already familiar to him, of dealing with the teeth in their morbid states.

Such I believe to be a fair general statement regarding the training at the present time of a medical man and of a dentist. Let us contrast the requirements of these two. The medical man requires a knowledge of the minute structure and of the functions of the whole body, but the dentist only a knowledge of the minute structure of the teeth and of the jaws, and a general idea of the rest of the human frame. A medical man requires only a general, but sound, idea of mechanical work, but the dentist a thorough knowledge of it, so that he may be able to perform his work with accuracy.

A medical man requires a detailed knowledge of all diseased processes and their known causes, but the dentist a particular knowledge of morbid processes as seen in the teeth and jaws, and only a general idea of the morbid processes observed in the remainder of the body. Such a review brings out pretty clearly that the educational career of a medical man does not coincide with that of the dentist except in a few particulars.

Even in anatomy and physiology, in which their work comes nearest together, the dental student requires that which will give him a sound understanding of the teeth and their connection with, and relation to, the remainder of the body, whereas the medical student should be familiar with the whole body. Of course, the more a dentist knows of the human body or of any other kindred subject the better he will be equipped generally, but not necessarily better furnished for the work of his own profession.

And if we go further and compare the surgeon with the dentist, we shall find that their work differs in a material degree. The dentist must possess many of the qualities that go to make a surgeon; he should have a quick perception, a keen insight, a sensitive touch, and be ever ready to act. But the skill of the dentist is largely, if not entirely, the result of that training in the mechanical department, so to speak, whereas the skill of the surgeon depends less upon mechanical training than upon accurate judgment to do enough and no more,—for in hardly any operation is it necessary for him to make a physicist's measurements and to adhere to them. Mechanical training has indeed been neglected in the education of a surgeon, and hence it is that we often deplore the mechanical knowledge and the reasoning built upon its deficiency as displayed even by surgeons of repute. This has been neglected, I imagine, because that skill born of judgment has been estimated so highly. Now, with the dentist it is just the reverse, for who can conceive a dentist who is ignorant of mechanical work?—but one without judgment may perhaps be occasionally met with. Thus the surgeon is at one end of the scale and the dentist is at the other, and doubtless it would be a good thing to improve them both, but in contrary directions.

Enough has, I hope, been said to point out that to make a dentist his training should be so arranged as to bring out his fitness for the work before him. A mechanical training of the best kind is essential to him, and must form the basis of his future work. In addition he requires a knowledge of the minute structure and of the function of the teeth, the material upon which he will have to bring his best mechanical skill to bear. I would therefore strongly urge you not to imitate the education of a medical student, but to continue on the lines which will train a dentist for his own profession from first to last, and to have a single purpose in view and to endeavor to obtain a definite result. Do not try to make a medical man a dentist, but let a dentist start and finish as such.

Can this education of a dentist be carried on side by side with that of the medical man? is the question of practical importance. I would unhesitatingly answer, No. The anatomist may train either, but he cannot train both together without giving one much more than he requires and not paying enough attention to the other. It is much the same with physiology. Therefore, I say their courses should be separate, and so arranged as to serve the right end. In physics and chemistry the same training might serve; in study of disease, No.

Is such a course of study proper for a university to undertake? In my humble opinion it is and should be, for the work of the dentist is as honorable and as worthy of respect as that of any of the older professions, and I trust that the newer universities will take this line and have an avenue for dental students to obtain a university degree side by side with the medical student. But I also trust the authorities will let dentistry and medicine be free to develop along those lines which each finds best suited for its own progress.

Although dentistry was once an intimate part of the medical art, it can hardly be so again, for its evolution has been so complete that it now forms a distinct and separate division of the art of healing. It is, I venture to think, a child of the old stock destined to continue an independent existence and to work out its own salvation.

At the conclusion of the address, and before the opening of the discussion, Mr. W. B. Patterson, the honorary secretary of the British Dental Association, entered the room, and was heartily welcomed by Sir Michael Foster.

Dr. Brophy, Chicago, said that years ago he held views quite contrary to those he held to-day, but in the light of advancing education and the development of dentistry he had been forced to accept ideas that were formerly not agreeable to him. In the United States dentistry had its birth as a separate and distinct school of training; it was not from choice, but because the medical profession refused to give dentistry a place in their curriculum. At that time it was regretted, because it was wished that dentistry should be a part of the parent medical profession. But, independent schools having been founded, such branches of medicine were taught as the founders felt were necessary. The schools had now added, from time to time, departments until one who was not acquainted with all the medical curriculum might readily be led to believe that they were schools of medicine. It was recognized that in Europe the conditions were quite different from those in America. It was felt that it was impossible to make changes in this country, and in many instances it was quite impossible to make changes in America. The question, therefore, was how to prepare a man to do his work. He had the pleasure of sitting by the side of Sir Michael Foster at luncheon, and he put to him the question. He had a boy nineteen years of age, just ready to enter the university; should he be prepared by a long four yours' course in the university and then entered at the school of medicine for another four years' course or not? The answer was, "I would prepare him for his life's work. A student of medicine should devote his attention to the study of physics and chemistry and languages." Had he learned nothing more in his trip to Europe, he would have been fully compensated by that answer. He quite agreed with every word contained in the paper. The man who started out in life to prepare himself for any particular calling must have in mind that calling from the beginning to the end.

Dr. Sims Woodhead (professor of pathology, Cambridge) said that every man preparing for his life's work underwent a certain amount of general training, a training to fit him for the specific work he had to undertake later; and he could not help thinking that perhaps the preliminary years of the dental student and medical student might at any rate run on certain parallel lines. An attempt was made, how far successfully it was difficult to say, in the subject he had to deal with to give the medical student, as soon as he came from his study of anatomy and physiology, some inkling of the general processes of disease. The student specialized in the direction of special pathology, diseases of the nervous system, diseases of the kidney, and so on; but before he took this up it was absolutely necessary he should have a good solid foundation of the general processes of disease. That being the case, he could not help thinking it might be somewhat dangerous to begin to specialize at too early a stage, and whether it would not be better to study at any rate the general physiological and pathological processes, in order that in studving the disease of the special parts to which attention was to be devoted one might go to the very foundation straight away. From that point of view, he put in a plea for some common ground in the earlier part of the dentist's professional life. He recognized how much dental surgeons had contributed to the subject of bacteriology. In fact, the earliest experiments in bacteriology were carried out on material taken from the teeth. He quite agreed with dentists specializing in the later stages of their course and not attempting to be medical men or surgeons, because they wished to treat a patient for special diseases of special organs, and it was their duty to know far more about those than any medical man or surgeon possibly could know. Dentists were experts, and therefore required an expert training. Even the surgeon found it necessary to specialize, and anything outside his own work he handed over to a colleague. In that light he hoped no attempt would be made to make the dental qualification a medical qualification, but that it would be made something far better for the purpose than any medical or surgical qualification. The dental surgeon was a man specializing in a certain direction, who had built up his profession on a good, sound foundation of general physiological and pathological knowledge.

Professor Hesse, Leipzig, considered that the preparation for the dental profession was so different in different countries that it was almost impossible to fix a rule or a standard for the preparation in all countries. It was necessary to be guided by the point in view,—namely, the development of the art or profession which it was intended to practice, and the training should be such as was best fitted to secure that end.

Dr. Aguilar, Madrid, said he was deeply interested in the proceedings of the Federation, because he was the first to feel th necessity of such deliberations. It was only a few months ago that in Spain the law for establishing a dental department in the University of Madrid was passed. Prior to that, there was no dental teaching, except what was given privately. He had the honor of being appointed to the chair of Dentology in the University of Madrid, and when he was called upon to propose the curriculum of studies he felt the necessity of learning the opinion of learned men,—and that opinion could not be better gained than through the Federation now assembled in Cambridge. He felt himself fully compensated and over-compensated for the trouble of attending the meeting. He had no authority to express an opinion of his own, and he would only place in the hands of the chairman the following proposition:

"That five members be appointed to propose resolutions on the following questions and report at the next meeting:

"(1) What preliminary studies should be required for the admittance of students into the dental colleges?

"(2) What are the technical, theoretical, and manual studies the student should pass through before being allowed to practice dentistry?

"(3) What part of the studies taught in the medical colleges should be followed by dental students?

"(4) What are the most reasonable titles to be applied to the persons who practice the therapeutic and prosthetic treatment of the diseases of the teeth and mouth?"

On the motion of Dr. George Cunningham, seconded by Dr. Brophy, the resolutions were referred to the Committee of Education, with full power to act.

(To be continued.)

CURRENT ARTICLES.

[Condensed for The Dental Summary readers.]

INTERSTITIAL GINGIVITIS AS A PROMINENT OBVIOUS EARLY SYMPTOMS OF AUTOINTOXICATION AND DRUG POISONING.*

BY EUGENE S. TALBOT, M.D., CHICAGO.

The constitutional causes of interstitial gingvitis are autointoxication and drug poisoning. The autointoxication from pregnancy and change in climate have a most marked effect upon the alveolar process. The effect of changes of climate from a moderate temperature to extreme heat and to extreme cold, as well as high altitude, will produce the same result. This is noticeable in American soldiers in Cuba and the Philippines. The engineers and workmen on the Jungfrau Railway, two thousand six hundred meters above the sea level, suffer most intensely with this disease.

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*Extract from article in International Dental Journal.

The alveolar process, containing two or more teeth, becomes involved, resulting in acute inflammation throughout. The pain may consist of slight uneasiness ranging to the most severe pain. The teeth loosen and finally drop out.

Interstitial gingivitis may affect the alveolar process and gums of defective, degenerate, and neuropathic children, children rachitic, or those who have had long illness. They are very susceptible to nervous impulses. People who have obtained their growth, that is, after thirty to thirty-five years of age, are the most susceptible and exhibit the most marked results from autointoxication and drug poisoning.

The poison due to autointoxication and drugs circulates in the capillaries, setting up inflammation. This extends throughout the alveolar process and gums.

Interstitial gingivitas produces four forms of bone absorption—lacunar, or osteoclast, halisteresis, Volkmann's perforating canal, and osteomalacia, or senile absorption. Halisteresis and Volkmann's perforating canal absorption are naturally most common, since they are due directly to the inflammatory process and are likewise more rapid in their action. Lacunar or osteoclast absorption is nearly always present, but is slow. Osteomalacia or senile absorption is a natural process and attacks every individual sooner or later. Interstitial gingivitis is recognized by puffiness and bleeding of the gums. Absorption of the alveolar process causes a recession of the gums from the necks of the teeth, thus leaving the necks exposed. On account of the transitory nature of the alveolar process, if the inflammatory process be not arrested, the teeth will finally loosen and drop out. Pus infection frequently takes place. This especially occurs about the necks of the teeth, and the resulting products are taken into the stomach, producing indigestion. Treatment consists in the patient's drinking eight or more glasses of pure water each day, in brushing the gums with a stiff tooth-brush three times a day, thereby causing them to bleed, and the employment of proper mouth-washes. Tincture of iodine should be used upon the gums and alveolar process every other day until they are restored to health.

RESTORATION OF THE NORMAL OUTLINE OF GUM TISSUE BY MECHANICAL MEANS.*

BY WILLIAM A. MILLS, D.D.S., BALTIMORE.

In this paper attention will be called to the use of quick-setting amalgam and paraffin, either alone or in combination, for replacing the lost parts of roots where they have been fractured to a considerable extent along the lines of their shafts, also for preserving the normal outline and fulness of the gum-tissues covering the labial surfaces of the six superior anterior teeth. In the majority of cases the break extends from the cervix to near the apex, often carrying with it more or less of the thin bony covering. If allowed to remain for only a short while before surgical interference, the soft tissues become inflamed, causing more or less absorption of the alveolus along its whole length. To splint such roots is useless; consequently they have been extracted, producing a contraction of the bony tissue, and a corresponding depression of the gum-tissue; and when substitutes have been inserted to replace the lost organs, their artificial character has been so pronounced that the beauty of an otherwise pretty or handsome face has been disfigured. To overcome this, and to preserve the beauty and natural outline of the tissues, so essential to life-like prosthetic work, the following is respectfully submitted for consideration. Before removal of the loosened part of the root to be treated, carefully separate it from the soft tissues, being careful not to injure or tear them, for more depends upon this for success than anything else. After the removal of the fractured part, clean out and sterilize the fixed portion of the root, seal the apex with pink gutta-percha, make undercuts along both sides of the pulp-canal, insert a screw post in the solid portion towards the apex, and fill with a quick-setting amalgam. Allow sufficient material to make up for the lost parts and the filling out of the gum contour.

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*From article in Dental Brief.

In very simple cases amalgam alone will do, but when the fracture is deep-seated, and the alveolus is exposed, fill first against the bony structures with paraffin and the remainder finish with amalgam. The amalgam will protect the paraffin; for, while the latter is non-absorptive, non-absorbable and perfectly congenial to all vitalized tissues, it is slightly compressible at blood temperature and might be forced out of shape by mastication or the pressure of a plate if it were not so protected.

Before dismissing the patient be sure that the amalgam in contact with the soft tissues is as smooth as possible, with no overhanging edges. At the second appointment, the surface of the amalgam must be highly polished with a thin orange-wood stick and fine pumice-stone. In the course of a few months you will be pleasantly surprised to notice how closely the gum-tissues have adapted themselves to the surface of the amalgam, and how very healthy they are, notwithstanding foreign bodies lie embedded within their folds.

A NEW BRIDGE-SUPPORT.*

BY S. H. GUILFORD, D.D.S., PHILADELPHIA.

A method of jacketing crowns which should possess the desirable qualities of not requiring the devitalization of the pulp; no perceptible alteration of the form of the natural crown; no exposure of gold; sufficient rigidity to support the bridge; and no deterioration or loss of the cementing medium, has long been desired and hoped for, but until recently has not been devised.

One combining all of these desirable qualities with no apparent offsetting disadvantages was brought to the writer's notice at the time of the meeting of the National Dental Association in Milwaukee, in August last. We received and accepted an invitation from Dr. J. P. Carmichael to see him construct and insert for Prof. J. Taft a bridge supported at its anterior end by a new method of attachment.

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*Extract from article in the Stomatologist.

As the jacket or support was the main feature of novelty in the operation, it alone will be here described, although the description and illustrations do not give nearly as good an idea of the method as could be obtained from a practical demonstration. The method is entirely novel, while the little details of construction are most ingenious and important.

Taking a bicuspid as an illustration of the tooth intended to serve as the anterior support of a bridge, its preparation is begun by grinding a somewhat shallow groove on the occlusal surface between the cusps and extending from the mesial to the distal surface. With a rose-head or fissure bur this groove is continued on both of the approximal surfaces up to the cervical margin. This furnishes a continuous groove on three surfaces of the tooth and constitutes the retentive feature of the device.

Most of the enamel is now ground or dressed off from the approximal surfaces from groove to groove, including the occlusal and lingual surfaces. This grinding will lessen the depth of the approximal grooves, so they will have to be deepened by a little additional burring. Thus shaped, the tooth is ready for the construction of the cap or jacket. Taking an impression of the tooth as prepared, a fusible metal model or die is made, and on it the jacket is worked into its general form.

Pure gold plate, gauge No. 40, or pure platinum of same gauge is used. A piece of suitable size is laid around the lingual surface from groove to groove and carefully burnished into the latter with smooth round instruments. The top is then folded over the lingual cusp and burnished to it and into the occlusal groove. When a good fit has been obtained on the metal die the cap is transferred to the mouth and more accurately adapted to the tooth itself.

The next step is the stiffening and strengthening of this cap without altering its form. After careful removal from the tooth the grooves are boraxed and in them are laid small sections of half-round platinous gold wire and sufficient solder to unite them. The different sections of stiff gold wire are thus converted into a continuous staple of great rigidity. Only in this way could a staple be constructed and fastened in position without warping the jacket.

The stiffened form is now again placed upon the natural tooth and given a final burnishing, after which the entire cap is stiffened and thickened to equal the layer of enamel removed by laying over it small pieces of platinous gold plate, No. 24 gauge, and about one-eighth of an inch square. When these are united to the cap by 20 karat solder, it is more rigid than it could have been made by a cap of double thickness with less solder.

After the surface has been ground smooth and polished it will be found to fit the crown and the grooves perfectly, and when fastened in position be capable of withstanding far greater strain than it will ever be subjected to.

The whole operation is one demanding nicety of manipulation and exceeding care in order to secure the best results.

In burnishing the sheet gold to the form of the tooth and into the grooves one has to avoid tearing it at any point, for if punctured it will be impossible to prevent the solder from flowing into the interior of the cap and ruining the fit. If the gold be torn at any stage of the procedure, it should at once be discarded and the operation begun anew.

So, too, the greatest care must be exercised in handling the cap before it has been stiffened, to avoid changing its form.

After the cap is completed, and just before it is polished, it should be placed in position, and with polishing tape dressed to conform to the remaining edge of enamel and the general approximal outline. Thus finished, it and the tooth will present an even and unbroken line and reduce to the minimum the possibility of tooth-injury from food accumulation.

After the piers for each end of the bridge are finished they are placed in position, and impression taken, and the remaining portion of the bridge completed in the usual manner.

An incisor or a cuspid may, with equal facility, be prepared and fitted with a jacket for the support of a bridge, the operation in each case being virtually the same.

In setting the piece, gutta-percha instead of zinc phosphate is used as the medium of attachment. The jacket being burnished to the form of the tooth, very little space exists for any cementing medium, which, of course, helps to insure the permanency of the operation.

A FEW MORE LITTLE POINTERS.*

BY STEWART J. SPENCE, D.D.S.

To prevent the dark shade along the festoon of the Richmond crown: Heat the investment from below. This dark shade is caused by a space between the porcelain crown and the cap, which becomes filled with decomposed food, etc. The space may be so filled with solder that there is no room for anything else, by so thoroughly heating the case from its bottom that when the solder is flowed to form the backing a portion of it, flowing in the direction of greatest heat, will flow into this space and fill it. This method of heating from below will also prevent the cracking of porcelain caused by premature heating of the pins. In soldering a band to the Logan crown this is particularly important, because of the large relative size of its platinum.

To prevent gold plate from cracking during swedging: Use a light blow. It is the sudden, heavy blow which does the damage. Remember the success of the gold-foil beater. I use a light jeweler's hammer for making gold crowns, giving an abundance of little taps. The same rule applies in swedging plates.

To make formagen cement adhere to the cavity bed: Press it down with a pledget of cotton moistened with carbolic acid. To previously get it into the cavity, dip the point of your carrying instrument in carbolic acid and then in the dry powder. But do not depend on this latter to force it to the cavity walls, else you may fill air in the cavity under an imperfectly laid mass of the formagen.

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*From Dental Brief.

To prevent the rusting of the inside of the hypodermic needle: After using it (and also after immersing it in an antiseptic fluid, if an aqueous fluid is used for this purpose) dry it by forcing air through it from a hot-air syringe.

To obviate some of the pain of puncturing the gums by the hypodermic needle: Make the first puncture with a fine-pointed sewing-needle.

Dr. Steurer's gold annealer. This instrument differs from other gold annealers in that the tray is composed of fire-clay. After using mine for some time I noticed that such pieces of gold as had been a long time on the tray under heat became penetrable to carbon from the flame, I placed beneath it a sheet of mica. The trouble ceased.

Bebe ribbon. For removing the excess of amalgam from freshly made proximal fillings I use the common silk ribbon, sold in dry-goods stores, named bebe (pronounced baby) ribbon. I much prefer it to floss-silk, rubber dam strip, or cotton strip. Being strong, sleek, and thin, it can usually be forced between any two teeth, especially if soaped a little. By pressing it against the *other* tooth while inserting it between two, you avoid displacing too much of your newly made filling. I prefer it of one-sixth-inch width, but it is well to have three widths on hand.

A handy little instrument. This is a sort of plugger, readily made out of a broken Gates canal-drill. Bend about three-fourths of an inch at almost a right-angle with the shank. This gives you a deep-reaching instrument, well adapted for driving gutta-percha points into remote canals in the molars, and for a number of little operations for which nothing else does quite so well.

THE CONSTRUCTION OF ARTIFICIAL CROWNS.*

BY JAMES P. NICHOL, D.D.S., PHILADELPHIA, PA.

Let us take the Richmond crown, for instance. You are all familiar with the construction of this style of crown. Allow me to ask, Why should such heavy backings be used? We all know there is absolutely no union between platinum, or other metal used for backing, and the porcelain facings.

Now, if soft platinum about 1/1000 gauge (same as is used in inlay work) is used and burnished nicely around all the edges after soldering and finishing the piece, we get splendid margins, and the danger of checking facings, so far as tight backings are concerned, is almost eliminated.

The method I have been using in backing a Richmond incisor is as follows: cut the backing a trifle larger than the facing all around; on the approximal surfaces let it overlap about a line, on the cutting edge leave it, say about one-sixteenth to one-eight of an inch long; by snipping it along this edge at intervals the wrinkling may be avoided, as it conforms to the curves of the facing.

It is well to punch the pin-holes in the backing as near the exact size of the pins in the facing as possible; if they are enlarged, as they usually are, the flux or borax will be drawn through between the backing and facing and will cause checking of the facing. After the backing is burnished nicely the piece is placed on the model and waxed up; this being done, brace the piece with the fingers on the labial or buccal surface, and by pressing on the wax you can crowd the soft thin backing to the facing; thus getting an excellent adjustment. In investing the piece let the material cover the overlapping edges so that when the wax is removed the backing will be held in position by the investing material until the piece is soldered.

In the construction of the Richmond bicuspid crown there is another point to which I would call attention, that is the joint between the cusp and the facing.

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*Extract from International Dental Journal

To make an artistic piece of work and show the least possible amount of gold, a mitred joint should be used so that the cuspal end of the porcelain is ground at an angle of about forty-five degrees with the back of the facing.

We must not overlook the contraction that takes place, more or less, after soldering a crown of this type, and with this in view we should fit the joint between the cusp and facing accordingly.

After the facing has been bevelled and waxed in position, the cusp is then filed to the opposite bevel of porcelain. In placing it in position it should fit the facing closely at the buccal aspect and stand out slightly at the flat surface, or, in other words, at the backing; in cooling after soldering the contraction would take place almost on a line with the points designated, and the joint be closed.

REPAIRING RUBBER PLATES.*

BY O. H. SOSSAMAN, CLARION, IOWA.

One think should be remembered at the start, namely, that a rubber plate repaired with rubber alone is not so strong as it was originally. I have often done the work according to the old methods, and in a short time have had them break in the same place as at first. Consequently I have adopted the following method, which may not be original with me, but it has never been described so far as I know. Suppose the rubber plate has been broken in two, and nearly through the center—hold the two parts together as accurately as possible, and mark at right angles across the fracture near the incisors and at the back of plate. Now drill holes one-eighth inch on each side of fracture and about the diameter of a pin. Double binding-wire and put a ligature at each end, drawing the wire up tight and smooth, thus closing the fracture. This affords sufficient strength until you can fill the palatal surface of plate with plaster. After it is set, cut away the labial surface of the pink rubber, beginning about one-half inch on either side of fracture, and aim to bevel a straight line on either side also, to meet at the fracture and the plaster model, being careful not to mar the latter.

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*From the Dental Digest.

Now drill several holes near the outside of beveled portion, and prepare aluminum to fit snugly into the excavations made in the plate, so that when you have it waxed over smoothly with pink rubber the aluminum will not be exposed. In finishing, the metal is prepared by anchoring it to the proper gag, and perforating with a small punch upon a lead slab. Be careful not to weaken the metal. Now that this part of the plate is waxed with pink rubber and is ready to be vulcanized, invest in the flask, palatal surface down, just as you would an ordinary case, covering the teeth and plate, and exposing only a strip each side of the fracture for about one-half inch. After the plaster has set, remove the wire ligatures and pour the top half of flask. Upon separating you will find that you have the original thickness of plate, as no wax has been used. Now bevel this part of plate as you did the labial surface, then prepare the aluminum to fit exactly into the beveled part, being careful to place the metal far enough below the surface so that it will not be exposed in finishing. If a flat surface of aluminum should be exposed the rubber is apt to curl away from it and afford a lodging place for food, etc., although it would not be any worse than a plate of this metal with rubber attachments. I use aluminum frequently for strengthening rubber plates, especially lowers.

PRACTICAL POINTS IN PROSTHESIS.*

BY DR. G. F. SHOWERS.

In constructing artificial dentures, the first consideration is the character and condition of the mouth,—whether any teeth remain, their position, etc.; the shape of the arch, whether the mouth is uniformly hard, or hard in one place and soft in another,—as on these conditions depend the treatment of the impression and the selection of an impression material.

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*From Dental Cosmos.

For a full plate, nothing equals plaster as an impression material. If it is desirable to have a model exactly representing the parts in their normal position, use thinly mixed plaster; if it is desirable to compress the soft parts, use a heavier mix and wait until it has begun to set.

To prevent plaster from dropping back into the throat, place a rim of soft wax across the back part of the impression tray and place it in position, fitting the wax accurately to the palate. When the tray is placed in the mouth with the plaster in it, this wax rim effectually prevents the plaster from overflowing. This ridge of wax compresses the tissues slightly and makes a snug fit at that point, while without it the plaster has a tendency to drop away, and the plate will not fit closely unless a considerable portion is scraped from the model.

Plaster impressions sometimes adhere very tenaciously to the mucous membrane. To avoid this, mix with the impression plaster a quantity of marble-dust or pumice,—one part pumice to two parts plaster. This also facilitates separating the model from the impression, as the impression is much softer and easier to break, thus reducing the danger of breaking the model.

The bite is preferably taken on the gutta-percha base-plates, using in this operation the Snow "face bow," which will be found of great assistance in producing the perfect set of teeth, as with it we are enabled to place the bite on the models and fasten them to the Gritman articulator in the same relation as they were in the mouth. We know that the distance from the condyle to the center of the jaw where the incisor teeth will be placed is about four inches, which we might measure when placing the bite in the articulator; but the "face bow" measures it for us, and prevents displacement of the models laterally.

I would like to suggest an improvement for the "face bow," or rather that part of the apparatus which is placed in the mouth. Instead of having the surfaces which are placed between the upper and lower trial plates smooth, have two short posts on each side; these, when the jaws are closed, will imbed themselves in the wax. The bite may be taken with this part in position, then the bow adjusted. The bow with the mouth-piece attached is then removed (as it is unnecessary to fasten the trial plates together), the posts having marked the wax so they may readily be placed in the correct position and fastened together before placing them on the articulator. I have found this plan much more convenient than attempting to remove the "face bow" with the base-plates attached, and besides being much easier it is more accurate, as we avoid the danger of changing the relative position of the trial plates, which is apt to occur when they are removed with the "face bow."

The Gritman articulator is so modeled as to enable us to get the movements of the jaw as it is used in masticating, while with the old-style hinge articulator but one movement is possible. It is impossible to properly articulate a set of teeth on one of the old style, as the teeth will be correct in but one position. With the lateral and forward movements possible with the Gritman, we can arrange the teeth so that they will be correct in any position in which the jaw is used.

The correct overbite is very easily determined if we bear in mind what Dr. Bonwill has written on this subject: "The overbite of the incisors is equal to the length of the cusps of the bicuspids," and after we have the case in the articulator we may see at a glance how far the upper incisors should overlap the lower. It is my practice to try the teeth in the mouth after they are ground up, to make sure that no mistakes have been made.

The next important consideration is how to avoid dark joints. I follow the time-honored method of working thinly-mixed oxyphosphate cement between the joints and measuring the wax base-plate in a glass partly filled with water, substituting rubber for wax to get the correct amount of rubber, thus avoiding excessive pressure in closing the flask and the danger of forcing the blocks apart.

It is excellent practice to cover the model with tin foil before packing the rubber, thus securing a smooth palatal surface, which adds much to the comfort of the patient and to the ease with which the plate may be kept clean. The tin may be removed after vulcanization by immersing the plate in muriatic acid.

Before packing, be sure to scrape away the posterior portion of the model to the depth of about one-thirty-second of an inch. This gives sufficient thickness of rubber to finish up with a well-rounded edge, which will not cut into the tissues.

The most troublesome class of plates to make satisfactory are those partial cases where no teeth posterior to the canines or first bicuspids remain. Lower plates of this class are more difficult than the upper. For these troublesome cases I wish to recommend the Condit system of attachment. This method requires crowning of the canines or bicuspids, and to the distal-approximal surfaces of the crowns is soldered a short, heavy tube. A split tube with a spur to extend into the rubber. This split tube has a post soldered in the grinding-surface end, and extending the length of the tube. The split tube fits outside the tube on the crown and the pivot inside, forming a very strong method of attachment. Care must be taken to have the tubes parallel, that the plate may be readily placed in position. This method is superior to clasps in every way, but is more expensive. A trial will convince both operator and patient of its usefulness.

On metal plates, a rim around the edge adds to the stiffness of the plate; makes a much nicer finish, and aids materially in holding the rubber. An easy way to make this rim is to swage it as a part of the plate, and for aluminum plates the only way. The plan I have adopted is as follows: Bevel the impression around the upper edge, the bevel sloping toward the outer edge all the way around. Be sure to trim off enough so that the plate will not extend too high. This forms a shoulder around the outer part of the model, against which the plate is swaged, which turns the upper edge of the plate, but not quite enough to form the rim. It can be completed with a pair of pliers, with no danger of distorting the plate, as the rim is more than half formed by the swaging. It is impossible for the rubber to separate from the plate if this style of rim is used, and it always separates more or less when no rim is used, affording a place for the lodgment of particles of food.

THE STAPLE CROWN.

BY F. L. MARSHALL, D.D.S., BOSTON, MASS.

I have the pleasure of presenting to your notice to-day the Staple Crown,—a crown which I think superior to all others as a bridge attachment for any tooth anterior to the molars, while as a method of strengthening badly decayed teeth it is unequalled. At this point I wish to state that the idea is not entirely original with me. About five years ago a friend told me of a crown made by Dr. Carmichael, of Milwaukee. The principal difference between Dr. Carmichael's crown and my own is that he burnishes gold into grooves made in the teeth to be crowned, while I use a platinum-iridium staple. This staple crown I have used for different purposes for five years with very gratifying results. I have been able to save the nerves of a great many teeth, and have received the thanks of my patients by relieving them from the unsightly open-faced crown. My first drawing will illustrate the preparation of any of the six front teeth for the crown. In this particular case I have used a canine.

Take the enamel fissure bur, have your assistant keep a fine stream of cold water running over the tooth, and quickly cut into the side of the tooth to the depth of the bur. Repeat the same on the opposite side, having the grooves come just back of the contour. Then connect the grooves across the tooth by the use of an enamel bur or a small stone. If the articulation is very close, grind off enough to allow for the thickness of the crown. Then knife-edge your tooth from the cross-groove to the point, as you would an artificial tooth before backing up.

Next select your piece of platinum-iridium wire, a trifle smaller than the bur; bend a right angle on the end long enough to fit one approximal groove. Take the distance across between the grooves in your eye and bend another right angle in the wire at that distance, thus forming the "staple" which gives the crown its name. Cut the ends of the staple the proper length to fit the grooves, having the cross-bar flush with the palatal portion of the tooth.

Now take a thin piece of pure gold from 30 to 35 gauge, large enough to fully cover the back of the tooth. Take your staple in a pair of pliers and hold in contact with the piece of pure gold at about the angle illustrated in the drawing. Solder with 22-karat solder at the point of contact. Bend the gold loosely around the sides of the staple, and trim the cervical portion as illustrated.

Place the staple into the grooves and burnish the gold firmly to one side. Remove and solder. Replace the crown, and burnish all around back of tooth tightly to the opposite side. Remove and solder. Now replace and burnish all around the free edges. Trim off the surplus; remove; flow 20-karat solder over the outside of the crown, taking particular pains to leave or to keep the edges of the pure gold to about one-thirty-second of an inch free from solder. These edges are to be burnished tightly to the tooth when the crown is cemented into place. The burnishing is to be done before the cement hardens.

The construction of a bicuspid or molar crown is very different from one for any of the six front teeth. The first thing to do is to grind off the inner cusp and straighten the walls of the back part of the tooth. Then cut the grooves in the anterior cusp just as you would in a canine. Cut a band of 22-carat gold as you would to make a full crown, only not quite so long. Solder one side of the staple about one-sixteenth of an inch from one end of the band. Place the staple on the tooth. Draw the band around the tooth to the opposite side. Burnish tightly to the neck. Remove; push the free end of the staple back about the distance of one line so as to assure a tight fit, and then solder. Strike up your cusps, preferably of 22-karat gold, fit to the top of the band, and solder at the inner point of contact. Put in place on the tooth. Allow the patient to bite firmly to give correct occlusion. Burnish to the cutting-edge of outer cusp. Remove; trim and fill the inner cusp with solder up to the cross-bar of the staple. Allow the solder to unite the joints between the cusps and the band at the outer or buccal cusp. Burnish all around the edges, and your crown is finished.

The lower teeth are treated in the same way as the upper, only that a smaller wire must be used.

COMBINATION SPLINT AND BRIDGE-WORK IN THE TREATMENT OF PYORRHEA ALVEOLARIS.

BY DR. W. L. FISH, NEWARK, N. J.

The first and probably the most important operation, after having accurately placed the teeth by silk ligatures, is the impression, and this must be absolutely perfect and at all times taken in sections and in plaster. In case of front teeth, the plaster should be mixed soft and carried well up around the palatal surface of the teeth. After it has hardened, remove and trim, soap well and return to position, when the labial impression may be taken in the ordinary tray. When the model is run you will have an absolutely perfect counterpart of your teeth, including the ligatures, the impression of which must be carefully removed. This model should take in the six front teeth only, and upon it must be constructed the splint. My method is as follows:

Take pure platinum, about No. 36 standard wire gauge, and burnish perfectly to the palatal portion of the teeth; after adapting the same, trim so as not to encroach too near the gum, extending to the cutting-edge. A piece of No. 25 gauge platinum-iridium about three-sixteenths of an inch wide is formed to fit this backing, extending around each canine to a point equal to the center line of the tooth. This and the thin platinum backing are waxed and carefully removed, when they may be soldered lightly at first, returned to the model and burnished, when they may again be removed and the little triangles and spaces between band and backing filled with 22-karat solder.

The finished bar must now be drilled and reamed with the Bryant reamer to admit the nut upon the small wedges. The wedges are made by burnishing a piece of pure platinum, same gauge as the backing, on the splint, in the center of which a pinhole has been punched, to each individual space between the teeth. A pure platinum wire is cut to pass between the teeth, allowing length enough to pass through the splint. Upon one end a thread is cut to receive the small Bryant nut. The wire is now forced into an asbestos block, threaded end first, until a small portion remains exposed. Over this end is placed the head-piece, and pure gold is flowed into the same, uniting bolt and head. This is now finished to suit the case.

The splints for the bicuspids are made to cover approximal palatal and grinding surface, a small pin being soldered in the center of each which fits into a corresponding hole drilled in the center of the tooth. This, when in place, prevents any possible chance of the tooth moving outward. The anchorage for the ends of bridges are simple caps, extending just beyond the large diameter tooth. In no case must any part of the device encroach upon the soft tissues, in order to prevent the possibility of food accumulation.

When the numerous caps and splints are ready, they are placed in position, and, if necessary, ligated to keep the teeth in exact position. Bites are now taken for those portions of the bridges where dummies are to be placed, after which an impression of the combination is taken. In this instance it is only necessary to have impression of palatal surface of front teeth. All parts are removed and placed in the impression, where they are treated as is usual in crown and bridge work. In soldering it is necessary to have every piece of metal touch its neighbor to preclude shrinkage; should spaces exist, fill in the same with small pieces of plate before soldering. Do not be sparing of solder, it being always wise to err in the line of strength. When setting the device apply the rubber dam. In applying the little nuts to the wedge bolts, I use a small screwdriver made from an old right-angle hand-piece. This enables me to work in the smallest possible space.

The results obtained in these cases have been all that could be desired. The two teeth that were replanted have become thoroughly united; the gums around the teeth in both cases are in a perfect state of health, and with the bridges articulating with the lower teeth the patients are enabled to thoroughly masticate their food; and it has been years since either of them have enjoyed such perfect health. Both patients have been seen within the past few days, and the teeth and gums in both cases are in excellent shape.

BRIEFS.

[Condensed from Contemporaneous Literature for THE DENTAL SUMMARY.]

A HINT.

F. H. ROBERTS.

To stop toothache, clean out the cavity as well as you can and use the oxide of zinc powder of cement for vehicle instead of cotton. Mix the powder with oil of cloves, or whatever you generally use, and place in the cavity in the form of a thin paste, covering the bottom well; it shuts out air and saliva much better than cotton; dry the top a little with cotton and seal the cavity. It is much more effective.—*Dental Brief.*

SOME CAUSES OF FAILURE IN FILLING WITH GOLD.

J. W. CORMANY, MT. CARROLL, ILL.

After the rubber dam is adjusted I wash the tooth off with alcohol. Neglect of this practice is one reason why fillings fail, for when a piece of gold comes in contact with a tooth which is not absolutely clean it does not adhere. Other causes of failure are: faulty preparation of cavities; neglect to polish off the margins; listening to the wishes of our patients rather than to our own judgment; faulty articulation, as where we allow a cusp on the occluding tooth to knock out a beautiful contour filling; lack of attention to details and poor judgment.

A GLUE FOR POLISHED METAL.

The *Scientific American* says that in Oriental countries jewels are set with the following mixture: "Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid. In another vessel dissolve in brandy as much isinglass, previously softened in water, as will make a two-ounce phial of strong glue, adding two small bits of gum ammoniac, which must be rubbed until dissolved. Then mix the whole with heat. Keep in a phial closely stopped. When it is to be used set the phial in boiling water. This cement perfectly resists moisture and it is said to be able to unite effectually two surfaces of polished steel."

METHOD FOR SETTING LOGAN CROWNS.

H. MONROE, PARKERSBURG, W. VA.

In the tooth to which a Logan crown is to be fitted, with a good-sized rose bur I ream out the pulp-canal to a depth in the root corresponding to the point at which I wish to cut off the root for placing the crown. With a large inverted cone bur I then cut out all the dentin to the required depth, and almost to the surrounding gum-margin. Then with a very narrow but deep wheel bur the cutting of root to the gum-tissue can be finished without causing the least irritation to the gum or the least flow of blood. By the exercise of a little care you can thus cut off the tooth one-sixteenth, and even one-eighth, of an inch below the gum-magin and completely hide the joint.

NEW METHOD OF RESUSCITATION.

M. Ogata and J. Futagawa recommend what they call the stroke resuscitation for asphyxia, and the shaking resuscitation for anæsthesia. The former consists of a light stroke over the anterio-inferior margin of the chest with the palmar side of the extended fingers, repeated from ten to fifteen times a minute. The respiration is stimulated, the heart's action excited, and the circulation accelerated. Shaking resuscitation is performed as follows: The feet of the child are grasped by one hand and the shoulders held by the other; the trunk is gradually raised, and the head brought near the feet, the body being strongly flexed at the hip-joint, while the chest is pressed with the hand. The head is then raised, the trunk is gradually extended, and the child returned to its former extended position. Thus expiration and inspiration are secured. Should a repetition of this procedure be fruitless, after a moment's pause in the second posture, the hand on the back is suddenly removed, the upper part of the child's body being thus thrown down and shaken. This should be done eight or ten times a minute, and a warm bath given after each eight or ten shakings. The authors claim that this method of resuscitation surpasses all others.—*Medical Record.*

POLISHING THE PALATAL SURFACE OF ALUMINUM PLATES.

F. M. KELSAY.

The following little item on the polishing of the palatal surface of an aluminum plate may be of value to some of your readers. After swaging and vulcanizing an aluminum plate, the problem that always confronted me has been to polish the palatal surface so that it would look clean. I tried everything I could think of, only with partial success, owing to my inability to get a brush wheel on the lathe to reach the rugæ and the deeper portion of the ridge. Finally I thought I would try the porte-polisher and the engine. The porte-polisher happened to have a tooth-polishing brush in it, and that gave me a new idea. I wet the palatal surface of the plate and sprinkled it with powdered pumice, and then went over it with the stiff tooth-polishing brush; then washed it out, dried it, sprinkled dry pumice over the surface, put in a fresh brush, and polished it by running the engine rapidly. This gave the result I had been looking for, a polished palatal surface of an aluminum plate. In washing aluminum I use a stiff soap-lather on the plate-brush.—*Dental Brief.*

OPENING OF THE BITE WITH CAP-FILLING WITHOUT DESTROYING PULPS OF TEETH.

M. F. FINLEY, WASHINGTON, D. C.

At first, to build up the tooth with this filling he ground off the cusps or any prominences so as to make a nearly plain surface before stamping up a piece of pure gold plate to fit the occlusal surface of the tooth, next drilling holes in the tooth for pins and punching holes in the plate to correspond; he then soldered them in proper position, finally thickening the plate sufficiently to suit the case for the desired amount of opening of the bite. In molars he used four pins; in canines and bicuspids, three pins, avoiding the cusps in drilling the holes, so as not to jeopardize the pulp of the tooth.

Now as to the change made recently in his method: It is to take the tooth just as he finds it, and fitting the gold plate without any grinding of the tooth whatever, by stamping up on a die of Melotte's metal. He finds this more satisfactory both to patient and operator. All of these cap-fillings that he has used for opening the bite have been put on living teeth with very satisfactory results. By this method he avoids the excessive grinding which would be necessary to completely crown the teeth, or a very long sitting if filling were resorted to instead, in order to accomplish the raising or opening of the bite.—*Cosmos.*

METHOD OF PROTECTING CEMENT FILLINGS WITH CHIPS OF PORCELAIN FROM BROKEN PORCELAIN TEETH.

N. H. KEYSER.

Make an assortment of corners, angles, and flat surfaces of porcelain varying in size from that required for labial or buccal cavities to large proximal and occlusal cavities of bicuspids and molars. Having a variety of sizes on hand, but a few moments are consumed in preparing them for insertion.

Proximal cavities in incisors are prepared so that the porcelain chip can be inserted from the palatal surface. No attempt is made to secure marginal adjustment except towards the labial wall. For large cavities on the occlusal surface of molars, a small, short bite, plain molar, or bicuspid, such as made for vulcanite work, may be used.

There is a distinction between porcelain chips and porcelain inlays, as that term is generally understood, inasmuch as the inlay is made specially for the case, in a matrix or impression of the cavity, and is supposed to be an accurate marginal fit. The porcelain chips, on the contrary, are selected from a stock on hand, with regard to color and contour, accuracy of marginal fit being essential only at such points where it is plainly in view.

This method he finds very useful for proximal cavities in incisors where, owing to limited space, it is impossible to secure an accurate matrix.

The preparation of these chips is very simple. Select one sufficiently large, of suitable angle or contour, and shade preferably darker than lighter; grind with a carborundum wheel until sufficiently thin, roughly fit by chipping the edge with flat-nose pliers, and finish with a small stone. Fill the cavity with cement and while quite plastic insert the chip, carefully pressing it to place.

The porcelain being of sufficient strength to stand the stress of mastication, its harmony of color and the increased durability of the cement renders this method an important adjunct to the careful operator.—Extract from *Dental Brief.*

TREATMENT OF RECEDING GUMS.

L. C. TAYLOR.

Where there is a tendency to recession of the gums, as on some kinds of front teeth, usually canines and laterals, if cared for properly by frequent polishing and massaging, not only are teeth retained, but the gum will change from the whipcord edge to a thin edge, hugging the tooth closely, with sufficient restriction to come nearly or quite to its normal position,—especially so in young patients.

One of the great causes of failure in the proper caring for the mouth is want of a thorough, careful observation and ability to diagnose all the little warnings nature throws out for us to observe. We notice very few practitioners observe the little striations plainly apparent in the gums, starting a fourth-inch below or above the gum-margin, and usually making a bright red streak running parallel with the teeth. Said striation always has an origin, just under the gum-margin, from an irritating cause,—it may be a slight nodule or may come from a coating, but the cause can and should be found.

Another form of inflammation sometimes is found to be a heavy, dark redness commencing about one-fourth of an inch from the gum-margin and extending well into the lip. This latter description is not always easily diagnosed or prognosed. It will usually yield to the treatment we have described, provided it is followed with thoroughness and frequency. When it fails to disappear with said treatment, we may be pretty well convinced that there is a local crowding of the arch which we have not comprehended, which quite frequently will develop into acute facial neuralgia, with darting pains at times passing to the temples, when we may be quite sure that the teeth are becoming exostosed. The destruction of the nerve will be necessary if it has not already been choked off at the apex, and sometimes a full drill opening will be advisable, as the tooth can be much benefited and usually reduced to comfort, for many years at least, by frequent application of a hot instrument forced up the opening.—Extract *Dental Cosmos.*

PREPARATION FOR SHELL OR TELESCOPE CROWN.

BY H. J. GOSLEE.

In those instances where the ravages of extensive decay have caused the destruction of the remaining walls of the natural crown, so as to carry the cervical border at some point within or beyond the free margin of the gum, some means of permanent restoration of the continuity of the root is usually advisable.

This prevents the possible fracturing of unsupported walls during their preparation; adds materially to the integrity of the root; greatly facilitates the fitting of the band, and overcomes the probability of subsequent disintegration arising from an imperfect adaptation of the band to the margins of deep cervical pockets.

Such restoration can usually be best accomplished with *amalgam,* the use of which affords a better opportunity for securing a close adaptation between it and the margins of the root, with the assurance of a greater degree of permanency.

Where the edge of the band, however, *can* be fitted closely to the root at all points around its entire circumference, with a reasonable degree of certainty, and where the walls are weak, the use of cement for this purpose is preferable, because of the additional support rendered by its adhesive qualities, and because any further destruction of the tooth structure for the purpose of securing retention is unnecessary; but when the extreme depth of the marginal edge makes a close adaptation of the band either *impossible* or *doubtful,* amalgam should be used.

In using amalgam adequate retention must be secured in the pulp chamber, or root canals if necessary. A thin circular matrix of German silver, ga. 34-36, should then be adapted, and so shaped as to make the restoration of suitable form to save further preparation. After adjusting this, its inner surface should be coated with vaseline, oil, or any lubricating substance, to prevent adherence of the amalgam, and insure its easy removal after crystallization. To admit of and facilitate this the amalgam should never extend as high as the edge of the band, and a subsequent sitting is usually necessary.—*Extract Items.*

STERILIZATION OF DENTAL CARIES.

J. CHOQUET.

I have demonstrated previously the truth of the theory advanced by Dr. Galippe concerning the continuation of caries in spite of all the attention given in the preparation of cavities. All our efforts should be directed to the layer of dentin which lies immediately over the pulp in order to accomplish its sterilization and to prevent the subsequent resumption of the destructive process. This sterilization can only be brought about by adapting to dental practice the method used in histology for the preparation of tissues.

My *modus operandi* is as follows: First, I clean thoroughly the cavity to be filled, and wash the dentin several times with alcohol of 70, 90, and 100 degrees successively during half a minute with a cotton pellet. I then dry the cavity with hot air and place in it a dressing composed of absolute alcohol, xylene, essence of geranium, and hydronaphthol, which I leave there for twenty-four hours. After this period I insert the permanent filling.

I have carried on a series of experiments which demonstrated conclusively the necessity (1) of treating teeth to be filled in the same way as tissues intended to be sectioned are prepared in the laboratory; (2) of the perfect sterilization of dentin. The following experiment has been performed: Two teeth that were to be extracted were treated, one by cleansing it mechanically and the other by the same method plus the operative procedure above referred to. In each of these teeth was placed for five minutes a pellet of cotton saturated with the mixture already describel, to which methylene blue is added. The two teeth were then extracted and sections made longitudinally. In the first case, the coloring reagent remained localized to walls of the cavity; in the second it penetrated all through the substance of the organ.

When such an experiment is begun anew, but without using the methylene blue, and leaving the dressing for twenty-four hours, the penetration of the hydronaphthol can be shown by means of acid nitrate of mercury, which colors the healthy dentin pink, and the dentin saturated with hydronaphthol a dark yellow.

To prove conclusively the perfect sterilization of the dentin, if a tooth be crushed (after having first been subjected to a flame and then wrapped in sterilized paper), and fragments of it be put in the different nutritive media used in bacteriology, no growth will result. Among others I have used tooth gelatin, and the result has always been negative. On the contrary, if the dehydration has not been performed as indicated the nutritive media are always contaminated.

From the foregoing it follows that dental caries can be easily arrested, provided that the dentin is subjected to a preparation similar to that applied to tissues that are to be studied according to the current rules of histology.—*Dental Cosmos.*

EDITORIAL.

NEW DENTAL LAW FOR OHIO.

We desire to call attention particularly of our Ohio readers to a proposed change in the dental law of Ohio. A new bill will be introduced in the legislature in January, and we urge every dentist in Ohio to assist in its passage. Ohio has long enough been the dumping ground for incompetents and it is to the interest of every dentist that a change be brought about, and immediately. The proposed law, if passed, will require diploma and examination for all who desire to practice within the State, except those who are already registered by the State Board of Examiners. It will place the standard of dentistry in Ohio on a plane with the high standards of Pennsylvania, New York, New Jersey, and other States.

A clause looking forward to interchange of license reads as follows: "Upon a unanimous vote of the board, said board may excuse from examination an applicant holding a license to practice in some State requiring a diploma and examination." And certificates from this board will be recognized in other high standard States.

There are many strong points in the proposed law, and every dentist in Ohio should at once communicate with the senator and representative of his district and urge the passage of the bill. If you desire to see a draft of the bill, write to Dr. G. H. Wilson, 44 Euclid Ave., Cleveland, Ohio, who is secretary of the legislative committee.

SOCIETY.

SOUTH DAKOTA BOARD OF EXAMINERS.

A meeting of the South Dakota State Board of Dental Examiners for the examination of candidates will be held at Madison, S. D., January 8th, 1902. All candidates must appear not later than 9 o'clock A. M. of that date at the office of Dr. F. M. Palmer.

Practical demonstration will be required in every case, whether applicant holds diploma or not, and it will be necessary to bring complete operating outfit, including filling material and dental engine. Applicants bring patients, if convenient.

All temporary permits expire at this time and parties holding same must appear and obtain permanent licenses if they wish to continue practice.

G. W. Collins, D. D. S., *Secretary,*
Vermillion, S. Dak.

OHIO STATE DENTAL SOCIETY.

At the meeting held in Columbus, December 3-6, 1901, the following officers were elected for the ensuing year:

President—Otto Arnold, Columbus.
First Vice-President—J. B. Beauman, Columbus.
Second Vice-President—J. F. Stephan, Cleveland.
Secretary—S. D. Ruggles, Portsmouth.
Treasurer—C. I. Keely, Hamilton.

OHIO STATE BOARD OF DENTAL EXAMINERS.

At the meeting held November 26 fifteen candidates presented, but only three passed a successful examination.

On account of his college work, Dr. L. P. Bethel resigned his position as Secretary of the Board, and Dr. W. A. Price, Cleveland, was appointed Secretary.

NEW JERSEY STATE DENTAL SOCIETY.

The Committee on Exhibits desires to announce that at the thirty-second annual meeting of the New Jersey State Dental Society, to be held, as usual, in the "Auditorium," Asbury Park, July 16th, 17th and 18th, the large room which is especially adapted for exhibition purposes will be devoted exclusively to the exhibits. Every advantage is here offered for a great display with all the conveniences necessary for such an exhibition.

This will undoubtedly be a "big year," and especially so from the exhibit standpoint, as many exhibitors have already written to secure the space generally selected by them.

A great inducement offered to all the exhibitors is the fact that at last year's meeting over five hundred dentists registered at the entrance to the Exhibit Hall.

The names of the exhibitors selecting space prior to the program going to press will be mentioned therein, together with the nature of their display.

It is earnestly requested that those desiring space communicate with the Chairman at an early date.

Frank L. Hindle,
New Brunswick, N. J.,
Chairman of the Committee on Exhibits.

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TO CORRESPONDENTS.

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Subscriptions and advertisements, send to the publishers,

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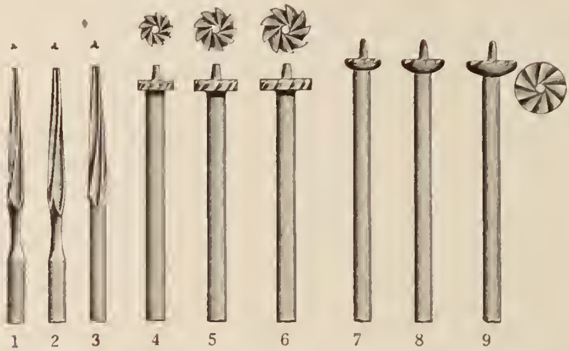

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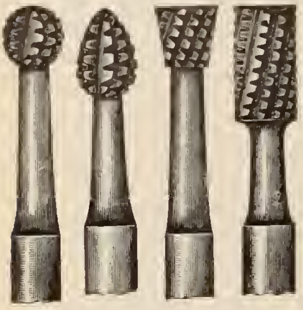

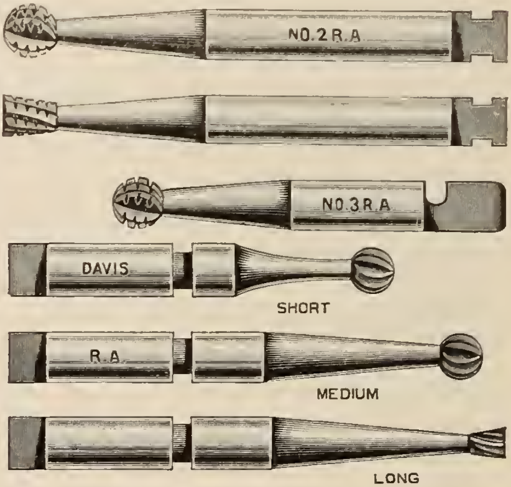

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THE

DENTAL SUMMARY

VOL. XXII FEBRUARY, 1902 NO. 2

CONTRIBUTIONS.

ESTHETIC PRINCIPLES OF LOGAN CROWNS.*

BY S. M. WEAVER, D.D.S., CLEVELAND, OHIO.

In making a crown, you should try to approximate nature as nearly as possible. In other words, deceive the inquisitive eyes of the patient's friends.

The nearest thing we have to this, I think, is the Logan crown, properly made.

First, I want to call attention to one *great error* generally found in the preparation of the root to receive the Logan crown.

The *usual* method is to cleave all the enamel off around the root (I am speaking now of banded Logans); this is a serious mistake. You have probably observed, after cleaving off *all* the enamel and setting your crown, there will develop a bluish line under the free margin of the gum. Now, what is the cause of this objectionable feature? Well it is this: You have removed a tissue (the enamel) which nature placed there to give translucency and lifelike appearance to the gingivae, and replaced it with a darker substance (gold). Now, in the first place, the band should *never* be brought to cover the labial portion of the root, as there is no leverage or strain whatever to necessitate any protection on that side of the root.

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*Presented at Ohio State Dental Society, Dec., 1901.

FOR THE SIX ANTERIOR TEETH.

Instead of removing the enamel on the labial side, leave it entirely alone, simply remove that on the lingual, mesial and distal sides, being careful not to remove it too far labially, then take measurement and make the band, allowing it to go up under the free margin of the gums on the lingual, but cut it narrow in front so it will not injure the gum, for the labial portion is to be cut away after the floor is soldered on.

When you have the band fitted perfectly tight around the end of the root, which is clearly seen through the open end of band, then mark on inside of band up as close to the end of the root as possible, with sharp instrument, then remove band and cut to line. Replace band, and with a stone dress the band perfectly flush with end of root, remove and solder floor of 24-k. 32-gauge gold over end of band, replace on root and mark the band at the point to which you wish to cut the labial band away, which should be far enough mesially and distally so the band does not show in front, then cut the labial portion away, being careful not to bend the band more than necessary, replace on root and burnish sides of band against the root which might have gotten bent in trimming off labial surface.

Now, all that should show on labial surface is the thin layer of pure gold which has been burnished against the square end of the root—in fact when the root is ground slightly under the free margin of gum as it should be, there is no gold in sight.

The next step is to take the Logan crown selected for the case, and after puncturing a small hole through the gold floor, force the Logan pin up into the canal which has been enlarged sufficiently to receive it.

Now take the crown and grind off the porcelain on the *lingual side well back* from the the floor so there is an open V-shaped space with just the *labial* portion touching the gold floor, grind this *approximately* to fit at this point, then take the crown and burnish a piece of pure gold, 32-gauge, over the end, puncturing a hole to admit the pin.

Take a sharp knife and fasten the backing on by turning down a shaving of platinum at each corner of the post, which will secure the gold backing from moving, then try in the mouth and force the crown up tightly so the gold floor and backing will adjust themselves, then remove the crown, leaving the cap on the root, place a small drop of sticky wax on the end of the crown, and while warm force it into place, allow to cool a few seconds, and remove both crown and cap together, invest in sump, and after setting, boil out the wax, leaving a V-shaped space to be filled with solder.

Make as small an investment as possible, leaving the band entirely exposed and free from all dirt, for the object of this is to allow the solder to extend from the top of band to the porcelain, and sufficient solder to bulge up, restoring the *lingual lobe* of the natural tooth, and also by so doing, strengthening the band. There is hardly any finishing to be done, as the solder assumes through capillary attraction almost the exact shape desired.

In soldering Logan crowns, care should be taken in giving them lots of time to heat slowly. Mind, I say slowly, as the large piece of platinum incorporated in the tooth must not be allowed to expand too rapidly, if so, the porcelain is sure to crack.

By restoring the lingual lobe in this way, the lingual gingiva is protected from the force of mastication, which is a redeeming feature over most crowns as they are usually made.

When this crown is completed you have, in my opinion, the strongest crown made, especially where the bite is direct on the incisal end, and with no gold showing, the most beautiful and artistic piece of work possible.

THE BICUSPID LOGAN.

The leverage on a bicuspid being both buccally and lingually necessitates the band extending around the entire tooth.

The root should be ground with a round-faced stone, following the curvature of the gum, which will be concave bucco-lingually. This done, fit a band perfectly, and filing the gold concave to approximate the curve of the gum, or, put the band on root and grind down to the same curve as the gum and slightly under the free margin on the buccal side, so that when the floor is soldered on, the gold will be entirely out of sight. Put on a pure gold floor, as on the other crown.

In first bicuspids, drill a hole straight up into each root, as far as your judgment will allow. Then take a *square ridioplatinum* wire (I say *square*, for a square wire is always stiffer than a round one), and insert into each root as far as possible, through holes punctured in the gold base; now solder this in place with a very small amount of solder. Then take a round file and cut pin off even with the floor. Replace on root and take bite and impression as you would in a Richmond.

When in articulator, take the Logan crown selected for the place, which should be, by the way, as near the right length as possible, to save grinding, cut the pin square off and grind the crown to fit the end of cap perfectly.

Care should be taken not to grind out all of the countersink around the pin, which is entirely unnecessary if care is taken in grinding. When you have this finished, take a narrow, square-edge stone and cut a notch on the distal side, through the edge of the countersink; this is for the purpose of giving room to solder the pin fast to the floor. Put the crown in position on cap and drop some very hot, sticky wax into the hole. This will hold the crown in place while you invest. After investing, boil out the wax, take a piece of pure gold the width of the notch, and stick down into the hole until it rests on the platinum pin. Press it gently against the porcelain, then heat slowly and flow 16-k. solder into the hole, which will readily follow down the piece of gold, and solder the pin fast to the entire floor of the cap, filling the countersink, making a stronger piece than any other porcelain crown made. After it has cooled, put it back into the articulator, or mouth, and with carbon paper grind to articulate.

This will give you one of the most natural and strongest crowns made. It is very easily and quickly made, with the most gratifying results to both patient and operator.

HEMOPHILIA.*

BY S. D. RUGGLES, D.D.S., PORTSMOUTH, O.

A hemorrhagic diathesis is characterized chiefly by a tendency to spontaneous bleeding from some trivial injury, and is usually accompanied by rheumatoid swelling and pains in the joints.

This disease was known to the ancient writers, but our first reliable information dates from the latter part of the seventeenth century. Concerning its etiology authorities agree that it is always hereditary, cases having been traced through seven generations.

The frequency in families varies considerably. While the females of a family are unaffected by the disease they transmit it to their male offspring. This is the rule with few exceptions. Occasionally, however, the transmission may be direct from father to son, grandson, etc. Cases are on record where the family history gave no account of the disease, but the marriages of blood relations have been known to develop hemophilia in the offspring.

Eighty-six per cent of the cases reported are found in the males, but in all probability many cases in the females are designated by other terms. The disease manifests itself in early life in many cases, but it is seldom that we are called until the removal of permanent teeth is necessary. It occurs in all parts of the world, but more often in the Northern countries, especially on sea coasts and in changeable climates. The season of the year sometimes affects the frequency of the attacks. This is very noticeable in cold and damp weather.

Upon examination the vessel walls are found to be unusually thin with their lumen considerably altered. The cardiac muscles are often found to have suffered from fatty degeneration. The appearance of the blood represents no characteristic features, except that its coagulability is decreased. After prolonged hemorrhage the blood becomes thin or hydremic and of a lighter color. Patients suffering from this disease bear the loss of blood more readily than those in perfect health.

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*Read at Ohio State Dental Society, December, 1901.

The real nature of hemophilia remains obscure. Coagulation is reduced in the infectious diseases and in leukemia, but records show that these diseases seldom accompany the excessive hemorrhages considered here. In all probability the fibrin is affected by chemical changes that are not discernible by our present methods. Coagulation takes place but very slowly. Schmidt claims that fibrin is produced by the interaction of two proteid bodies, viz., fibrinogen and poroglobulin, brought about by the action of some special fibrin ferment, and that when coagulation does not take place it is due to the lack of fibrinogen. On the other hand, Hammerstein claims that poroglobulin is not essential. It is generally conceded, however, that a small amount of salts, especially sodium, is necessary for coagulation; but if in excess, coagulation may be prevented altogether. Some authors hold that the vaso-motor system is largely responsible for the conditions in hemophilia. The hemorrhage is truly a parenchymatous one, rarely is a larger vessel directly implicated. In fact, deep wounds are more readily controlled in these subjects than superficial ones. Certain parts of the anatomy are more prone than others, mucous membranes especially. In typical cases the joints become swollen and painful, the condition depending upon the hemorrhage into the capsule and synovial membranes. This extravasation is quite noticeable and in later stakes is accompanied by ankylosis.

A correct diagnosis cannot be made from the appearance of the patient, for this disease is in no way distinctive, in spite of the detailed descriptions in some of our texts of the habitus hemophilicus. Physical examinations often reveal enlargement of the heart, and systolic murmurs may be heard at the base. The family history, together with the symptoms enumerated, should be your guide in a diagnosis.

After the first appearance of the disease the tendency continues throughout life, but when the hemorrhage is slight it often decreases in after years, some subjects living to a ripe old age. The prognosis is worse for the male.

Prophylaxis is difficult to follow in affected individuals. Every safeguard should be thrown about them and even the slightest operations such as circumcision, extractions or vaccinations must be avoided, except in the most urgent cases. Marriage should be prevented if possible, especially of the female members.

Immediately upon the occurrence of the hemorrhage the patient should be put at absolute rest. Occasionally this will suffice to allay the trouble, but the application of ice and the various hemostatic remedies should not be delayed. The more powerful styptics have the disadvantage of forming small clots which in their subsequent separations lead to more serious hemorrhage than the original. Many remedies are used internally, as percholorid of iron, ergot, gallic acid, and aromatic sulfuric acid. They seem to have little effect in some cases. Calcium chlorid and lime water are said to be more efficient. The effective remedies in our hands were pyrozone, three per cent, subsulfate of iron (Monsell's solution), adrenalin and compression.

One of the most obstinate experiences of this sort was with a male about twenty-four years of age, presenting a typical case in every way. The rheumatoid joints had made him an invalid from childhood, and the history of former experiences did not place the surgeon in an enviable position. The cause of this attack was the fracture of a lower second molar during mastication, causing a slight laceration of the gum. Almost a week had passed before a determined effort was made to stop the hemorrhage. At a consultation with his physician it was decided that extraction was absolutely necessary, for the constant motion of the tongue against the loose piece simply aggravated matters. The first molar was removed at the same time on account of its bad condition. No anesthetics were used. The alveoli were thoroughly washed with three per cent pyrozone, and the hemorrhage ceased in a short time. A pledget of cottonoid the size of the wound was thoroughly dusted with tannic acid and placed in position, on the top of which was placed a gutta-percha compress, separating all the teeth about one-quarter of an inch to allow for nourishment or vomiting. A four-inch roller bandage secured the position. Six hours later the patient returned with a profuse hemorrhage, the operation was repeated and the patient was instructed to keep off his feet and remain as quiet as possible. At two o'clock the following morning I was called to the office by a second return of the trouble which was most obstinate. After removing all the clots and washing with pyrozone the usual arrest of flow did not occur and the entire field remained obscured. A pledget of cotton corresponding in size and shape to each root was saturated in Monsell's solution and placed in the alveoli. Then a piece of cottonoid saturated in the same and dusted in the powder was placed over all and the compress readjusted. The patient was considerably distressed from the loss of blood, being nauseated and complaining of a severe headache. By daylight the hemorrhage was reduced sufficiently to remove him to his room. It was now evident that the patient must have absolute quiet and rest. A constant dribbling was kept up for several days in spite of the combined efforts of two physicians and myself. Several remedies were used and as much pressure as we deemed advisable. Having read of a new hemostatic, suprarenal extract, from the kidney of the sheep, we tried it. Fifteen grains in three drachms of boracic acid solution was used first. The hemorrhage stopped within five minutes and the tissues assumed a blanched appearance. The tissues were not lacerated and no loose pieces of process could be detected. The compress was replaced with a feeling of great relief. For the first time in days had the patient been able to take nourishment without the admixture of blood. A horizontal position was maintained during all this time. At the expiration of five or six hours the hemorrhage returned. A fresh solution was prepared and the extract applied again with good results. This was continued as often as necessary until the thirteenth day, when the hemorrhage ceased. During this period the patient experienced considerable distress from nausea and headaches. By keeping the alimentary tract open and administering tonics he kept up very well on milk and other liquid foods. A week elapsed before the compress was removed. The wound was entirely closed, the tissues presenting a very delicate pink tint. Antiseptics were used constantly from the beginning.

A few words concerning this remedy may be of interest. Suprarenal extract is the active principle of the suprarenal glands; is an astringent and hemostatic of great potency. The aqueous solutions, which were used in the above case, gave good results, but like all the animal extracts, deteriorated rapidly. It is non-irritating, non-toxic, and its hemostatic properties are due to the contracting of the muscular fibres of the vessel walls. A more stable article is now prepared by Parke, Davis & Co. and known as Adrenalin. When injected this is a most powerful cardiac stimulant, but its chief use to us is as a hemostatic. Solutions of 1/10,000 will blanch the normal conjunctiva in less than a minute, while solutions of 1/5000 are especially serviceable on the gums during the preparation of roots for crowns. It serves a wide field of usefulness in dentistry, eye, ear, nose and throat work, and with no deleterious after effects.

DISCUSSION ON DR. RUGGLES' PAPER.

DR. OTTO ARNOLD, Columbus: The subject presented by the essayist is an important one and ought to be of vital interest to every member of the dental profession. Notwithstanding the fact that serious hemorrhages from tooth extraction occur only in a small per cent of cases, when they do occur the dentist should be competent to manage such cases in a thoroughly scientific manner.

One of the most fruitful causes for criticism of dentists by medical men is due to the apparent and often real limitations of the dentist's resources when unusual complications or sequelæ follow his operations. True, many times these cases pass beyond his control and even beyond his knowledge. But if he should be consulted by the physicians into whose hands such cases fall, he may or may not, in proportion as he discloses his knowledge or ignorance in such matters, make an impression that stamps him as a man of broad attainments and as representing a profession whose limits are not confined only to technical manipulations. I am glad, therefore, that this subject has been presented to this body, and I trust that a thorough and profitable discussion will follow.

In the treatment of the case cited in this excellent paper, the writer failed to mention the administration of an internal astringent. Gallic acid in ten-grain doses, given every hour in a suitable vehicle, may have induced coagulation much earlier.

Locally, syringing the socket with *hot* water, which stimulates the vasomotor system of nerves to perform their normal functions, is good practice—preliminary to the use of local remedies. Tannin has in my hands been an efficient local styptic. Suprarenal extract is a more recent remedy, which I shall employ as occasion presents.

I take exception to the use of Monsell's solution under any circumstances. It is an escharotic, and secondary hemorrhage almost invariably follows its use. I also disapprove of the horizontal position in these cases. Gravitation is a factor to be reckoned with, and the more the head and shoulders are elevated the less the flow of blood to those regions.

I have among my clientele a characteristic case—a 12-year-old girl, a member of a family of so-called bleeders, who has bled excessively and continuously from the loss of temporary teeth. In this and other cases where the hemorrhagic diathesis was known to exist, much benefit has been gained by the preliminary administration of gallic acid as a prophylactic, before the necessary operations were attempted. There is no doubt about this being a systemic condition, then why hesitate about employing corrective remedies in conjunction with local measures.

Dr. H. A. Smith, Cincinnati, said but one styptic had proved efficient in his hands, and that was tannic acid, with a suitable amount of pressure. Gallic acid was known to be a good systemic agent to administer in these cases. He had noticed that those persons subject to severe hemorrhages were most invariably people who were physically exhausted—all tired out, as we say.

Dr. S. D. Ruggles: Regarding the horizontal position kept, in this case it was necessary in order to supply enough norishment to the tissues. Whenever the patient was propped up he became sick.

The doctor said he had tried internal administration of gallic acid for a week, administering it in ten-grain doses, but it did not prove effective. Hot water was faithfully used. Pyrozone offered temporary relief, but hemorrhage soon set in again.

He had found, however, that trional had proven a good remedy to relieve the sleeplessness.

AN EMERGENCY CROWN.*

BY DR. J. W. HARRIS, LODI, O.

Make suitable length post from German silver wire.

Taper one end and flatten the other, notching it to go between the pins of a rubber tooth.

Place in position on the prepared root, place soft modelling compound around pins, post and end of root. Care should be taken to make a perfect fit at end of root. Trim to shape, remove carefully, invest, finish with Watt's metal.

---

*Given as a clinic at the Ohio State Dental Society, December, 1901.

BLEACHING ENAMEL.*

BY JOSEPH HEAD, M.D., D.D.S., PHILADELPHIA, PA.

The rubber-dam should be applied and the tooth dried with a blast of air as hot as the patient can comfortably bear. Then a thin layer of cotton soaked in twenty-five per cent pyrozone should be laid upon it so that the stained enamel should be thoroughly soaked. Next a broad, flat, hot instrument should be placed upon the cotton and the steam of the pyrozone driven into the substance of the enamel. A large piece of rubber-dam should be used and oil should be previously rubbed into the hands of the operator, as the steam generated by the hot instrument is caustic. This process should be continued for about ten minutes, when the cotton should be removed and a ball burnisher, hot as the patient can easily bear, should be ironed over the brown stain, driving out of the enamel all the pyrozone that it has previously absorbed, and also bleaching the stain to an appreciable extent. This process should be continued for an hour, when the patient should be dismissed, being told to return again for other treatments at intervals of not less than two days, in order that the pulp may fully recover from any possible disturbance that the operation may have caused. I mention this purely by way of caution, as no patient of mine has ever complained of anything more than a few insignificant nerve thrills that were cheerfully borne in the light of the great improvement obtained.

Three or four sittings are usually sufficient to give satisfactory results. At the end of the last treatment, instead of pyrozone a concentrated solution of oxalic acid can be used to convert any iron that may have been present in the stain into a white oxalate, just as oxalic acid is employed in bleaching dentin stained with oxyhemoglobin. While the oxalic acid has at times seemed to be useful, in the greater number of instances the twenty-five per cent pyrozone alone has been amply sufficient.

---

*Extract of paper read at Nat. Dental Assn., Milwaukee, August, 1901.

BODIES AND COLOR EFFECTS IN PORCELAIN INLAY WORK.*

BY W. T. REEVES, D.D.S., CHICAGO.

With all inlays, either large or small, I first bake in the matrix what I call the foundation, using some high-fusing body, building in as much, allowing for shrinkage, as will leave room for the layers of color and enamel that are to follow, carefully trimming away any excess at the margins so that the layers to follow will be of the same thickness at the joint as at any other point. Upon this foundation I build the colors that the inlay is to be, using strong enough ones to reflect through the final layer or enamel color. In this way you can vary the shade of the inlay at pleasure from the yellowest color at the neck of the tooth to the bluest tip—in fact using all the ranges of color met with in the natural teeth. Upon this I build the final layer, which I call the enamel one, and ninety-nine times out of a hundred it is a very light yellow or greenish tinge, which will modify or subdue the underlying colors so as to give a perfect match of inlay to the teeth.

To inlay workers whose practice has been to take a little of this, that and other bodies, and mix them together until a shade is obtained that is a general match of the tooth, this may seem a radical departure, but by this method I believe the one great thing desired can be produced, a translucent, natural looking imitation of tooth structure; and the more varied the colors in the tooth you are trying to match the more sure you are of obtaining them in this way, for these are underlying colors and not surface ones.

A second advantage is, that you avoid the great bugbear called "the shadow problem," for an inlay built up in this manner, of three or more layers of bodies that are of different color and that fuse at a different degree of heat, will break up the direct absorption and reflection of light rays, and will look almost absolutely the same from whatever angle, point of view or distance you look at it. I never mix two or more bodies together to vary the shade of one, for you can get any shade desired of a given body by the thickness of the layer you put on, and a little practice along this line will give you more true artistic ability in producing color effect than all the tabulated proportions of body mixing you can accumulate. One point I want to emphasize, and that is the cultivation of the faculty of looking for underlying colors. A person may have a good eye for a general effect, and be able to select a facing and make a porcelain crown that placed between two natural teeth cannot be detected, yet not be able to match a tooth perfectly with a porcelain inlay because of the failure to see the underlying colors in the tooth; for if you cut off the corner of either adjoining tooth and cut off the corner of the facing and set against the tooth it would not match at all.

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*Extract of paper read before the Nat. Dental Asso., Milwaukee, 1901.

VACCINATION A PRIME FACTOR IN THE DESTRUCTION OF CHILDREN'S TEETH.

BY DR. D. V. BEACOCK, BROCKVILLE, ONT.

During the late smallpox scare, I was reluctantly drawn into a newspaper controversy on vaccination. In one of my letters I incidentally stated that, during a practice of over thirty years, I had noted, with feelings of sorrow, the terrible destruction that was going on with our children's teeth, and that several prominent dentists had stated that if this state of things continue, we bid fair to become an edentulous people; that I was led to believe that vaccination might possibly be an important factor in the case. My remarks were not only treated as quixotic, but absolutely untenable, and unsupported by any testimony whatever. Later and more searching investigation has served to strengthen the conviction that vaccination is a subject that it may not only be found to be an important, but a prime factor in the loss of children's teeth.

It is a well-known fact that children vaccinated during dentition, frequently suffer from diarrheal complaints, and the tooth-making process is interfered with, consequently the teeth are imperfectly developed and subject to decay. Any expert dentist can tell at a glance by the condition of the teeth of any boy or girl whether and when there was sickness in childhood. For instance, any nutritional disturbances occurring prior to the fifth year, the defect would be observed upon the incisors and first molar crowns, varying, of course, in location with the age and advancement of calcification. If prior to the seventh and after the third year, it would be seen on the crowns of the cuspids, bicuspids, and second molars; occurring between the eighth and twelfth years, it would probably produce some malformation of the third molars. This influence of general health upon the teeth, inducing vices of conformation, may be assigned as a very important factor, favoring the premature loss of the third molar or wisdom teeth. Development in it proceeds or is protracted through a period of childhood when the system is so liable to frequent and prolonged attacks of malnutrition, caused by vaccination and infantile diseases, which must unavoidably interfere with perfect calcification.

Now, after more than a third of a century's experience, I have no hesitation in saying it is my firm conviction that one of the greatest causes which produce decay in children's teeth, so characteristic of both Canadians and Americans, may be referred to vaccination, inflicted in early childhood by the vaccinator. It is well known that "vaccinia," by combining with latent syphilis, scrofula, etc., may, and often does, occasion an excessive disturbance and disease which often affects the teeth permanently. We need not wonder at this, only think how sensitive to pathological disturbances the hypersensitive tooth-germs are in childhood; and any nutritional derangement such as vaccination, or any infantile disease, will derange its functions. That these diseases do pervert nutrition or injure formative organs, and thus disturb the formation of the teeth, we are only too well aware; perversion of nutrition, either by the pabulum being filled with poison of the disease, or with the diseased products, or through its insufficiency, is a very potent cause, the effect of the disease-poison upon the formative organ causing death or rupture of the ameloblasts or odontoblasts, thus giving rise to defective places in the enamel or dentine, and may result in the final destruction of the organ. Congenital lesion of the teeth, fissures, erosions, etc., are exclusively due to disturbances of the dentinification, and belong to the history of the follicular evolution.

Dr. A. Carter, dentist, London, England, suggests that vaccination itself may be at the bottom of the defective dental organizations so prevalent where European physicians practice and nowhere else. A bovine disease is introduced into the blood of the infant, and during the early stages of dental formation, causing that defective development from which the present generation so generally suffers.

If intestinal disturbances, which frequently occur during dentition, as well as those arising from other causes, often produce grave alterations in the forms or quality of the teeth, why should vaccination not produce the gravest results, seeing that its effect upon our children sometimes lasts for weeks and months, and very often causes death? In the city of London alone no less than two hundred children die annually from vaccination.

Dr. Sylvester Graham, in his celebrated work, the "Science of Life," wrote: "Everything unfriendly to the sound constitution and permanent health of the teeth, is far more efficacious in its pernicious effects on these organs in childhood, than in the later periods of life. Indeed, there is no period in which the teeth are so deeply and permanently injured as they are previous to their eruption above the gums. From the time their germs begin to be developed until the teeth are completely formed, or during the progress of the second dentition, every disturbance (to wit, the poison of vaccine) in the organic domain, strikes at the very constitution of the teeth, and does them an irreparable injury, preparing them for early disease and decay."

The teeth are so intimately related to the nervous system in origin and sympathy, that many nervous disturbances in childhood affect the tooth-germs and derange its functions. In the study of this subject, we must consider the close anatomical relationship existing between the teeth and the nervous system. The sympathy and responsiveness existing between them are intense and wonderful, and would be utterly incomprehensible did we not carefully consider this; and in the matter of affecting perversion of nutrition of the teeth during development, nervous excesses and excitability, or hyperesthesia, is a prime factor.

The teeth are intimately related to the nervous system in the animal economy. They must, therefore, be more or less influenced by the state of the general health. They are liable to considerable modification of their texture by varying constitutional conditions. Excessive mental or emotional activity impairs digestion, and it diverts nutrition to the brain to repair undue waste, and from lack of this nutrition the teeth become degraded, and thus fall an easy prey to the aggressive agencies by the same disordered and defective assimilation.

A teething child should have more than usual hygienic care, more than usual freedom from all avoidable disturbing influences, for whatever tends, by modifying the general health unfavorably, to lower the resisting power of the organism, may readily convert the natural and otherwise easy course of dentition into one of great pain and even danger. There is undoubtedly, during the period of dentition an increased susceptibility to nervous and digestive troubles, requiring more than ordinary care and watchfulness on the part of the mother. Causes which at other times might have no appreciable effect, may then be productive of very great danger. In fact, anything which introduces inharmony into the functions of animal life, at this early period, may result in a disturbance of the process of dentition.

We find Dr. White, Philadelphia, writing in the *Dental Cosmos,* January, 1887: "It will not, I think, be denied, by any observing practitioner whose observation embraces representatives of three or four generations, that from the great-grandparents to their children and their children's children, there is a general continuous deterioration in the quality of the dental outfit, through the successive generations. All the facts of professional experience which have been gathered, all improved modes of practice which the best heads and hearts have thus far developed have not sufficed to stem the tide which seems destined to render the human race edentulous—that is, toothless."

Surely this is an alarming state of affairs. How is it that this terrible affliction has been forced upon us only within the present century?—in other words, since vaccination was introduced. Has not some law of God and Nature been violated, to bring upon our children such a dreadful affliction?

The sins of the fathers are visited upon the children with a vengeance, which is as precise as it is merciless. In the study of this all-important subject, we should ever keep in view this fact, that for nearly one hundred years the blood of nearly all our ancestors was inoculated with the virus of smallpox, and to our shame be it said, was as highly recommended by physicians as vaccination is to-day, and there is little doubt that most, if not all of us, through inheritance, have the germs of this foul and loathsome disease, in an attenuated form, it having been filtered through several generations, lying latent in our system, ready to be aroused into action on the first favorable opportunity, as we too often see when persons are vaccinated during a smallpox scare, they being invariably the first in every epidemic to catch smallpox. Let us hope that in this more enlightened age, our medical brethren may be induced to open their eyes to this alarming state of affairs, and aid by all means in their power to stem the torrent of this destructive avalanche which threatens to overwhelm our race.

Dr. A. Carter, who, in company with his father, a noted physician, traveled all over the world, made it his business to investigate this subject. He discovered that in the Punjab and Northwestern Provinces, both in the plains and mountains, that all the people, whether Hindoos, Sikhs, Punjabees, Afghans or Ghoorkas are provided with splendid teeth, and as a rule only lose them from old age; and throughout the whole length and breadth of the Indian Peninsula he never saw any one suffering from dental decay, except those who had unfortunately been subjected to the cowpoxing process. Again, in Ceylon, he found that while the native Singalese had nothing to complain of in their teeth, the young people of European parentage who had been vaccinated were suffering dreadfully. In Burmah also he found the very small population who had been vaccinated very generally suffering from dental decay. It was the same in Australia. The Chinese who settle in large numbers in the Straits Settlements under the British Government, and in Java and in other islands under the Dutch, often marry Malay women having sound teeth, and their children have sound teeth; but in Singapore and Penang the well-to-do part of them follow the example of their European neighbors, and have their children vaccinated, and those children grow up to be men and women with teeth as decayed as any people in the world.

From the above it appears that vaccination is accompanied in all parts of the world by defective teeth; can any reasonable person doubt that it must, in some way, be the cause? In considering the effects of vaccination on the teeth, no fact is better established by physiologists, than the severe constitutional derangement in early childhood leaves its indelible mark upon the teeth, and the child's health is affected by it just when the germs of the permanent teeth are undergoing their earliest formation. No one knows what change takes place in the character of the disease, "variola vaccinia," when transferred from the bovine into the human circulation, but it is known that when vaccine virus or lymph is introduced into sheep, it involves a disease of which the animal wastes away and dies. Can any one tell what may be the consequences of introducing "lues bovilla," a bestial humor out of a diseased calf, into the human circulation after a long lapse of years? The relation between cause and effect may, and no doubt is lost sight of. The vaccination of a healthy person is nothing less than the implanting of a noxious element in the body. The success of the operation consists in producing of actual disease, in bringing about a permanent, unnatural and morbid condition. The person thus contaminated will seldom, if ever, regain the former integrity of body, but on the contrary, made liable to a variety of ailments. Such compulsion to contract disease is an outrage analagous in its turpitude to enforced debauchery; and what makes it much worse, young children are the principal sufferers from such violation. They cannot resist, and those having charge of them are often unable or too ignorant to do so. They are thus made subject to the dreadful, evil results all their lives. For example, every fever or other illness that an infant undergoes leaves its sequelæ behind. Therefore, we may feel certain that a great cause of the decay of teeth may be referred to the disease "vaccinia" inflicted in early life by the vaccinator. Besides, think of the multiplex eruptive diseases, the tortuous eczemas, and their associates, which so invariably follow and make life a terrible burden.

Sound teeth are to a very large extent dependent on perfect nutrition in childhood, and nothing is more certain to injure this than vaccination, causing, as it does, such a nervous strain during this period, leaving out of the question the legion of infantile diseases that invariably follow in the wake of vaccination; and as the teeth germs are being constantly fed with poison-laden blood, imperfect development of dentine and defective enamel coating must inevitably follow which we too often see.

The development of these organs is retarded or misdirected, and the result is defectiveness and imperfection. The developing teeth being so sensitive to these disturbing influences, are readily affected by any and all of these constitutional diseases. Nutrition is the basis of creative function; the genesis of organs and the evolution of tissues depend supremely upon the constancy and perfection of the nutritive supply; if the nutritive fluids are in full vigor and health, the products of the tissue-builders are vigorous and healthful; if they are diseased, the tissues formed from them partake of the imperfection. Health must spring from health, just as disease from disease.

INTERNATIONAL DENTAL FEDERATION.

(Continued from page 28.)

Dr. Kirk. It was said some years ago by a gentleman who resided not so many miles from this spot that the "evil that men do lives after them; the good is oft interred with their bones." But in what has taken place at this conference it seems to me we have at least one instance where the reverse of that proposition is true. If I have been able to correctly interpret the *motif* of the eloquent and scholarly address by Sir Michael Foster, to which we all listened with such deep interest, I feel that I do him no injustice when I recognize in it the practical application of the principles set forth by Mr. Herbert Spencer in his epoch-making essay on Education; or when I further recognize in it the spirit which animated the life-work of that man who, more than all others, I regard as the Nestor of dental education in England, Sir John Tomes.

I was told before I left America, and even since my arrival in England, that it would be quite useless to expect that anything which might be done as a result of the conferences of the Federation would have any effect in modifying existing views on the subject of dental education in Great Britain; and yet here in England there has been given out by one of her recognized educational authorities, and from one of her greatest universities, a statement of the principles of dental professional education the most liberal, logical, and reasonable which, in my judgment, has yet been uttered anywhere.

Like Mr. Spencer, Sir Michael Foster in his address recognizes the utilitarian character of professional knowledge and the inevitable conclusion therefrom, that education should, from the beginning, be adapted to the uses which the knowledge thereby attained is intended to subserve. He has, by keeping that central idea in view, cut the Gordian knot which for years has confused our discussions and thought on the relationship of dentistry to medicine. His statement that the dentist, within the limits of his activities, is a "healer" places the dental practitioner upon the basis of a natural classification much more readily understandable than when he is regarded, either positively or negatively, as a medical specialist, for, lacking as we do an adequate definition of medicine, it is not yet possible to decide whether a dentist is a medical specialist or not.

The enthusiasm and unanimity of appreciation with which the address of Sir Michael Foster has been received clearly indicate the general acceptance which this representative international gathering has accorded to the views he has expressed. So evidently is that the case that it seems to me the further deliberations of this body may be most profitably confined to a study of the dental curriculum, or, in other words, to securing an arrangement of professional study in conformity with the principles set forth in the address, best suited to the education of the dentist. The best attainable curriculum is yet to be devised; the very fact that such marked differences are to be found in the curricula of dental colleges throughout the world is self-evident proof of the need for further investigation of the best methods for making dentists. It would simplify the question greatly if we should arrange all of the subjects now taught in all dental colleges into two categories. First, those which are essential, and, second, those which, though not essential, are desirable in the education of the dentist. We would then be in position, after having formulated a minimum essential curriculum, to provide for its continued expansion and improvement by the gradual inclusion of members of the category of desirables into that of the essentials.

Reference has been made to the importance of manual training as a feature of the dental curriculum, in order that there may be given to the student that high degree of manipulative dexterity without which he is unable to achieve success as a dental operator. We all admit the importance of manual training in dental education, but not all dental educators have clearly recognized an equally important consideration in that connection,—namely, the stage of development at which manual training should be undertaken by the student. I am not a physiologist, and I am glad to be in position to submit to the judgment of the distinguished physiologist as well as educator, who is our presiding officer to-day whether it is not true that in order to successfully train the hand to a high degree of dexterity the manual education must be undertaken early in life, for a period quickly arrives in later years where such training becomes impossible. It was that fact which was clearly recognized by Sir John Tomes, and which he so energetically and practically advocated in his efforts at dental educational reform in this country.

We have frequent and familiar examples of an analogous state of affairs in connection with the use of the bicycle. It is quite possible for an individual after attaining adult years to learn to ride the wheel, but the later it is put off the more certainly does the unfortunate rider develop that anxious expression of countenance which in America we call the "bicycle face." The learner may in time know how to propel his machine, but in so doing he acquires infinitely more knowledge about every feature of the topography of the roadbed over which he travels, and never acquires that freedom and abandon begotten of the automatic muscular co-ordination with which the street urchin of a dozen years controls his machine. It is the necessity for manual training for the dental student in an early period of his career, when his muscular and nervous receptivities are at their maximum, that we find, in my judgment, the strongest argument in favor of a special curriculum for the dental student, and a sufficient reason why his special education should not be deferred until after he has pursued a standard course of medical training.

Professor Griffiths has referred to the importance of including the study of bacteriology in the dental curriculum. I know of no better illustration of the practical utility of a knowledge of bacteriology to the operative dentist than that embodied in the statement recently made by Dr. Black, of Chicago, in which he said, with reference to the preparation of cavities in teeth preparatory to inserting fillings, that "the margins of all cavities should be laid down upon areas of tooth-structure which are relatively immune to the attacks of the bacteria which cause dental caries, in order to prevent a recurrence of the disease."

If that axiom be true, and I think that no one can successfully question its accuracy, the evident conclusion must be that no man can intelligently and successfully prepare a carious cavity in a tooth for filling except he be fortified by a fair knowledge of bacteriology. I feel that we may congratulate ourselves as dental teachers and practitioners upon our good fortune in securing the encouraging and far-sighted statement of dental educational principles embodied in the able address of our distinguished chairman and of those who have followed him.

Sir Michael Foster said, in answer to Dr. Kirk's inquiry, that for many years past he had urged that the education of the surgeon should not be delayed too long, because it was impossible after certain years to acquire that suppleness and dexterity of touch which was necessary for success. The mind grew old very slowly, and could be educated even late in life; but the body became old very soon, and it was necessary to train it while it was really young.

Dr. Sauvez then read his report, which here follows:

Gentlemen and Honored Confrères:—Permit me to thank you for the great honor that you have conferred upon me by appointing me secretary of the Executive Council of the International Dental Federation.

The second meeting of the Council will take place to-day, beginning the labors which will come to an end in Cambridge, August 7th.

The report that I read to you at the beginning of this meeting has informed you of the present situation.

You will recall the creation of the International Dental Federation. It was at the last meeting of the International Dental Congress in Paris, 1900, that it was decided to organize this Federation, in accordance with the requests presented to and accepted by the Congress. You will also remember that at that meeting we were appointed members of the Executive Council. I mention these points simply because I want you to remember that we are the legal representatives of the 1,200 members of the International Dental Congress. Our powers have been transmitted to us by that body, and will expire at the next Congress. We have emanated directly from the Congress and we must report at its next meeting the course and result of our work.

The purpose of the Federation, as manifested in its constitution, consists especially in providing for international dental congresses and reunions; in maintaining and in extending the relations between the several national committees and societies, and in organizing the several international commissions that it may deem necessary to create; in *resumé* the International Dental Federation must organize everything that may contribute to the advancement of odontological science.

If that be the purpose of the Federation, then the *rôle* of its Executive Council must be to plan the regulations of the Federation, to supervise their execution, to fix the dates and places of meeting of the international reunions, to summon the several commissions, to carry out the decisions of the Congress, and to examine the propositions submitted to it.

It is according to this order of ideas and in this spirit that we have been working since our last meeting. You will remember that a subcommittee of three members was appointed in order to insure the preparation of the constitution during the year 1900-1901. That committee held its first meeting on November 28, 1900, in Paris, at Dr. Godon's residence. The subcommittee decided, among other things, upon the publication of the *Bulletin of the Executive Council of the International Dental Federation* in four languages; this bulletin to serve as the official organ of the Executive Council. *l'Odontologie* has undertaken gratuitously the publication, and several foreign journals have courteously republished the text of said bulletin. We tender them our thanks in the name of the Council.

The members of the Executive Council and of the International Commission of Education have been notified of their appointment to said committees.

A second meeting of the subcommittee was held in Paris, May 27th, also at Dr. Godon's residence, as reported in the proceedings. It was at that meeting that the subcommittee prepared the regulations that we will presently submit to your consideration. It was also at that meeting that we organized the present session of the Council in London, profiting by the attraction offered by the annual meeting of the British Dental Association and of the American Dental Society of Europe.

We have reason to feel satisfied with the result obtained, for all the members that accepted the nominations agreed also to come here. Dr. Pichler is the only one that resigned, and his resignation was on account of ill health.

This first meeting is starting under happy auspices, and is being made delightful by the most cordial reception and the kind and generous hospitality tendered us by our English *confrères*. I think that I shall be acting as your interpreter in asking Mr. Cunningham to transmit our sincere thanks to the president of the British Dental Association.

This first session will emphasize in an indisputable manner the existence of the Executive Council, and hence of the International Dental Federation. This first session seems to assure us that the coming meetings will be followed with as much attention, even by the gentlemen of far-off countries, such as Dr. Harlan, and that the preparation for the next Congress, which is our principal *raison d'être* will be made with the assured assistance of the *confrères* best qualified for this kind of work. It is not our intention in these too short sessions to especially call your attention to the past; we will direct our efforts to the present and future. Consequently we must show you how important it is that the national federations and the various societies should cultivate intimate relations with the Executive Council—not because the Council desires to interfere in questions of a national character. The Council acts only as a counselor and organizer, leaving every federation or society completely free and independent and master of its own acts each in its respective country. This Council must form the legal union between the societies of different nations.

We must also endeavor to represent this Council in our various countries not as though it were a sort of secret committee occupied with great international questions, but as a committee of union, solidarity, and confraternity, ready to receive all the suggestions, all the propositions of the professional federations or societies, and to study them in order to reach impartial conclusions. We must represent that Council conscious of the fact that it is the outcome of a universal election, and that it is a body beneficial, if not essential, to the good understanding and confraternity of the dentists of all countries. Our particular personalities cease to exist; they will modify themselves and disappear. The body alone exists; the cells which compose it are called upon to undergo transformations, to grow old, to be replaced by others; but that matters not. What we must insure is the existence, the vitality, the power of the organ, which is the Executive Council, the active part and the representative of the International Dental Federation. This is why all the efforts of the members must tend to insure the good relations of the Council with the federations.

Our efforts should also be directed toward the formation of solid and well united federations between the national societies. In France all our efforts have been made toward that end, and we can announce to-day that the French Dental Federation is solidly established. Its first session will be held in Corsica in September, as the Section on Odontology of the French Association for the Advancement of Science, thanks to the efforts of President Godon.

I have yet to speak to you on the Commission of Education, on its organization, and on the work we are going to ask them to perform.

These several points will be the objects of a new report, which will be presented to you in the near future.

In the meanwhile I beg you, gentlemen, and honored *confrères,* to pardon my having occupied your attention for such a long time. Before concluding, I will also ask you to thank Mr. Cunningham, the principal organizer of this session, who has been instrumental in assuring us the honor of a reception in Cambridge, in that ancient university whose reputation has been world-wide for centuries.

INTERNATIONAL COMMISSION OF EDUCATION.

The meeting was called to order at 10:30 A. M. by President Godon.

The following members of the Commission were present: Drs. Aguilar, Brophy, Cunningham, Godon, Hesse, Kirk, Roy, Patterson, Queudot, and Rosenthal.

According to the decision of the Executive Council, the delegates of the several national societies to the London meeting were admitted as adjunct members of the commission for the session of 1901. The members admitted under these conditions are: Drs. Haderup, of Stark; Witthaus, of Rotterdam; Frank, Zsigmondy, and Weiser, of Vienna; Viau and Choquet, of Paris; Baruch, Quartermann, and Huet, of Brussels, and Bryan, of Basel.

DR. CUNNINGHAM invited the members of the commission to visit the Institute of Technology.

The secretary-general read his report to the Commission of Education in the name of the Executive Council:

Gentlemen and Honored Confrères.—The International Commission of Education, which to-day holds its first meeting, has been created pursuant to the adoption of resolutions 14 and 16 presented to the International Dental Congress. [See DENTAL COSMOS, October, 1901, page 1163.]

Following the adoption of these resolutions the Executive Council of the International Dental Federation appointed the following members to the International Commission of Education: Drs. Aguilar, Brophy, Cunningham, Godon, Hesse, Kirk, Roy, Patterson, Quendot, and Rosenthal.

Besides the aforesaid members, the Executive Council having decided that all the members of the council were to take part in the labors of the International Commission of Education, the following names should be added: Drs. Harlan, Förberg, and Sauvez.

The Executive Council also decided to admit as adjunct members of the commission, with the right to take part in the discussions, the following delegates to the Executive Council: Drs. Hadcrup, of Copenhagen; Baruch, Quartermann, and Huet, of Belgium; Witthaus, of Rotterdam; Bryan, of Basel; Vian and Choquet, of Paris; Frank, Weiser, and Zsigmondy, of Vienna.

The number of active members of the Commission of Education can be increased by the Executive Council.

The commission will be represented by the following officers: A president, two vice-presidents, and secretary.

The object of the International Commission of Education is as follows:

(1) To prepare a program of the theoretical and practical subjects that the dentist should take up.

(2) To prepare reports for the following sessions on important questions of dental education.

(3) To present at the international dental congresses the questions of greater importance.

(4) To create and organize the necessary subcommittees corresponding to the several sections of the International Dental Congress of 1900.

(5) To create, maintain, and make closer the relations between the different dental schools.

(6) In a general way, to organize anything that may contribute toward the improvement of dental education.

The functions of the officers of the International Commission of Education are:

(1) To assure and to limit the work of this commission. (2) To bring together the several subcommittees. (3) To submit to the Executive Council the resolutions of the commission. (4) To examine the propositions which are addressed to it by the Executive Council or by the federations or societies.

Now that the constitution, the working, the *rôle* and the purpose of the International Commission of Education have been pointed out, we will proceed to examine the conditions of dental education from an international point of view. It seems, however, impossible to enter into a limited discussion, without beginning by a general one.

We must constantly bear in mind that the International Commission of Education appointed by the Executive Council must not try to impose the same system of dental education in all countries. The dentists of different countries form a series of dissimilar groups from the standpoints of number and professional status, and march in the road of progress with more or less advanced ideas according to the measure of maturity of the profession in every country.

We wish to insist upon this point in order to say once again that all the international commissions, of whatever nature, must be strictly careful not to interfere with such questions as are national, and to allow the latter to be freely discussed by the representatives of the particular countries concerned. Only in this way will it be possible for the commissions to exist, and to work without awakening dissatisfaction. The different commissions should act as instruments of union, as organs of progress, and their members should, for the time being, entirely sink their personalities and nationalities in order to work only for an independent and high purpose. These commissions should limit themselves to discussing questions of a large and philosophical aspect, leaving aside the individual questions.

Dental education is at the present time the subject of much thought and consideration on the part of the leading members of the profession. Only yesterday Mr. Hutchinson, the newly elected president of the British Dental Association, discussed this question. Some time ago Dr. Kirk discussed it in a very interesting publication in the DENTAL COSMOS. While we are here, a meeting consecrated to dental education is being held in the United States. We thus see that this question is discussed the world over.

The Executive Council has preferred to let the commission work freely on its own lines, without requiring from it any reports. What you have to discuss will really comprise the following points:

First. What preliminary knowledge is necessary for the dental student?

Second. What part of the medical and scientific subjects should be taken up, and at what time of the period of training should the study of them be pursued?

Third. What is the importance of theoretical technical knowledge?

Fourth. What is the importance of practical technical knowledge?

Fifth. What are the most appropriate names for the several titles now used all over the world?

We will call your attention to the reports of Drs. Godon and Roy to the Third International Dental Congress that we have brought once again before your consideration. Also to the reports by Professor Arkövy and Dr. Guillermin; to the 7th, 8th, and 9th resolutions adopted at the Congress, and to the recent article by Professor Kirk.

There cannot be the slightest doubt that with the foregoing basis, and with the officers that you will appoint, a meeting like this will produce the results expected from it.

You have all come from distant points with a disinterested purpose, in order to occupy yourselves with important educational questions which are of the noblest and most momentous character, as upon them rests the future of the profession.

We are certain that you will know how to elevate your discussions to the level of your exalted task, and that you will work with enthusiasm for the good of the profession and for the sake of humanity.

(To be continued.)

CURRENT ARTICLES.

[Condensed for The Dental Summary readers.]

THE IDEAL CROWN.*

BY G. M. TREWIN, D.D.S., TORONTO, CAN.

To obtain the best results with this form of crown, there are five essential points:

(1) Fit. (2) Occlusion. (3) Strength. (4) Approximal Contact. (5) Esthetic Appearance.

Now, the nature of porcelain being mineral and friable, its strength therefore increasing in proportion to its bulk, the use of this crown is contra-indicated in "close bite," where enough porcelain cannot be used to secure strength.

The ten anterior teeth are indicated for this method of crown restoration, especially the bicuspids, for by its use the display of gold cusps and the all-gold crown is avoided. It is also very applicable in those cases where reproduction of gum is necessary.

No metal backing being used, the translucency of the facing is not affected; no dirty joints occur, as where facing and metal meet, therefore perfect cleanliness, and there is but little danger of the facing breaking away, for whereas, in a metal-backed crown the facing is held only by the pins, in the porcelain baked crown the facing is not only held by the pins, but by the fusing of the porcelain body with the facing as well.

The construction of this crown is as follows:† The crown is cut off about 1-16 of an inch from the gum margin, the enamel scraped off, measurement taken, and a band of pure platinum (28-gauge) soldered and fitted, pure gold being used as solder, or platinum solder may be used. If pure gold be used, the band must be made with a lap-joint, for if simply butted it will separate in baking, from expansion. Place the band, fitted perfectly to the root and festooned to fit gum margin, in position, and grind both band and root down together below the gum margin, grinding it square across. Next burnish a piece of 32-gauge platinum to this plane surface to form floor, and solder this floor to the band.

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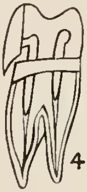
*Abstract of article in Dominion Dental Journal.

†The author desires to thank Dr. Goslee of Chicago, and Dr. E. Abbott of Toronto, for suggestions.

Next fit the post in the root canal, enlarging the canal as little as possible, using posting for centrals, cuspids and molars of 16-gauge B. & S., and for bicuspids and laterals 18-gauge or iridio-platinum, on account of its strength and rigidity.

The post should be square or triangular, as this form is most rigid and will not rotate in the canal. It should not be tapered, but of the same size throughout, probably pointed slightly at the end (see Fig. 1), and should, to overcome leverage, be extended into the root a distance equal to the length of the crown, with also a considerable free end.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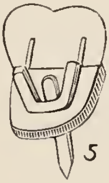
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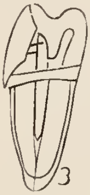
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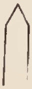
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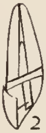
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Having fitted the post into the root-canal again place on the cap, and locating the position of the canal opening, drive the pointed end of the pin through the floor to position in the root, thus procuring adaptation of floor with sides of post.

Remove cap and post together by forcing a piece of heated gutta-percha against them, letting cool and withdrawing (should they not come away readily, they can be removed with pliers and placed in proper relation in this gutta-percha impression). Flow a little plaster around pin and in cap, thus holding them in position; remove gutta-percha and solder cap to post, then again place cap with post in position; take a bite first, and then an impression of these in mouth, and articulate, placing a little wax above post and in cap so it can be heated and easily removed from model.

Having selected a suitable facing, which should tend to be dark on account of sometimes bleaching slightly in baking, grind it very thin at the neck, so that it will project a little over the band (see Fig. 2), so that porcelain may be baked over band and anchored there, thus preventing the show of metal should recession take place.

Next the pins of the facing should be brought in perfect contact with projecting end of the post, or bent down in contact with the floor of the cap. Invest and solder so as to combine the strength of the porcelain and the fastening of the facing to the cap.

In bicuspids, an additional support for the lingual cusp is necessary, which is supplied by a vertical bar soldered to lingual portion of cap (see Fig. 3), or in double-rooted bicuspids a post may be placed in the lingual root-canal (see Fig. 4).

The ends and edges of these supports must be rounded, or the porcelain will not adapt itself to them. They then would form wedges to weaken the crown. As small a quantity of solder as possible to secure parts should be used, else porosity in baking may occur, and no borax whatever is necessary, since neither pure gold nor platinum oxidize under the blow-pipe flame used.

After soldering, all sharp angles, points and edges should be disked smooth and rounded, the crown placed in an acid bath, and washed perfectly clean. It is then ready for the body. The best body for this work is the ordinary continuous gum body, which, however, is too coarse. It should, therefore, be ground fine in a mortar, after which it will work nicely.

Place the crown in a pin-vise, and remembering that extreme cleanliness is essential, mix the body to proper manipulative consistency. Now commence to build up crown, absorbing excess moisture with bibulous paper till crown is built up a little larger than necessary. Then dry the mass till it cuts like putty, at which stage the dentist may diplay his skill as a sculptor, carving the mass to desired form and contour. Having obtained this, give it the first bake, partially vitrifying or biscuiting it.

At the second bake, have crown of desired form contour and articulation, and bake to a point of perfect vitrifaction. Allow to cool gradually, and the crown is completed, ready for mounting.

Now, the molar crown, which is illustrated in Fig. 5, is of value in those cases where the crown is ground or made very short, for a narrow band may be made and additional support obtained by a post, consideration of the bite being necessary for its use in molars, however. In upper molars, this post should be placed in the lingual root; in lower molars in the distal root. As regards mounting, gutta-percha, barring its difficult manipulation, is best, for it acts as a cushion, it is insoluble in the fluids of the mouth, and is easily removed if necessary. In the use of cement, the pin should be slightly coated with shellac, or chloro-percha, which renders it easier to remove.

GUTTA-PERCHA AS A MEDIUM FOR ATTACHMENT OF CROWNS AND BRIDGES.*

BY S. H. GUILFORD, D.D.S., PH.D.

Zinc phosphate has served such an important purpose in connection with crown and bridge work that it is doubtful whether this method of artificial substitution would ever have attained anything like its present perfection and popularity without its aid.

Its valuable properties of adhesiveness, rigidity, ease of application, non-expansion and non-contraction were so apparent and essential that for a long time we seemed unaware of certain objectionable characteristics which later it was found to possess.

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*From the Stomatologist.

In time, however, these were forced upon our attention. Experience proved that while rigidity was an admirable quality so long as the piece remained in position, it was a most objectionable feature when, for any reason, the crown or bridge had to be removed. It was also found that where the cement existed in a thin layer, as under jackets or partial crowns, its brittleness caused it to disappear in a very discouraging manner.

Objection to the use of cement has also been urged by many operators on the ground of its irritating properties when the hollow-metal or shell crown is placed upon a living tooth. Many cases have been reported where so much pain and discomfort followed the setting of the crown that it had to be removed and the pulp devitalized before comfort could be restored. This could only occur, we think, in cases where the natural crown had been excessively denuded or dressed down, thus leaving too little dentin between the pulp and the irritating cement. For such extensive cutting there is little or no excuse; still the practice prevails in some sections, and hence the unfavorable results.

The most objectionable quality of the cement, however, proved to be its porosity, by which it readily became permeated with saliva and minute food particles which underwent putrefactive decomposition and became thoroughly offensive. Owing to its being non-removable for cleansing, a bridge at best is a rather unhygienic appliance, but when it covers a mass of cement permeated by substances in a state of putrefaction it becomes doubly offensive.

Gutta-percha was long ago recognized as a material possessing qualities in some respects superior to zinc phosphate as a medium of attachment, but the apparent difficulties associated with its employment restricted its use to the setting of single crowns without bands.

Twenty years ago Marshall Webb and others (the writer included) used it in this way because it offered a readier method of removal in case of accident, but it was not then believed to be serviceable for bridge-work in general. However, time, experiment, a better knowledge of solvents, and improved methods of uniformly heating large masses of gold and porcelain have removed the former difficulties, so that to-day, fortunately for ourselves as well as our patients, we are able to set our crowns and bridges by the aid of gutta-percha in a far more skilful and scientific manner than ever before.

Single, unbanded dowel crowns were formerly set with gutta-percha in one of two ways. Dr. Webb's method was to fill the root canal with the white gutta-percha (medium heat) used for filling. With a small tapering instrument, oiled and heated, he would perforate the plastic mass and enlarge the cavity until it would admit the dowel for the greater part of its length. He would then heat the entire crown over an ordinary annealing lamp and quickly force it to place. This seemed a very crude method of operating, yet it was effective, and the crowns remained so firmly in place that none were known to become loose or fail in their attachment.

The second method consisted in placing no gutta-percha in the root, but in fashioning it around the dowel instead. The dowel, after being well barbed, was treated to one or two coats of chloro-percha and allowed to dry. White gutta-percha was then pressed into a very thin sheet and a narrow strip of this wound once or twice around the dowel. By repeated heatings over the lamp-flame and manipulation the gutta-percha was well attached to the dowel and given the general tapering form of the root canal. While this was being done a suitable instrument with a large metallic end, properly shaped, was being heated over the lamp. The crown with its covered dowel was then placed in position at the opening of the root canal, the hot instrument applied to the body of the crown and gentle pressure exerted.

As the heat was transmitted through the gold and porcelain of the crown to the dowel its gutta-percha covering became soft, and yielding to the pressure gradually sank into position.

No solvent was used to facilitate the operation or to effect a closer adaptation of the gutta-percha to the canal walls, yet the fit was so exact that the operation proved as reliable and permanent as could be desired.

Banded crowns were supposed to be not suitable for this method of attachment because of apparent difficulty of forcing any surplus gutta-percha over the root end and out between the band and root. The idea of arranging to have no surplus and of lining the band with the merest film of the material to effect a seal did not present itself. With our present knowledge this is readily done and a banded crown is as securely set with gutta-percha as with zinc phosphate.

COMBINATION OF GOLD WITH PORCELAIN.*

This is a subject of unfailing interest to the practical man, and one that well illustrates the axiom, "Many men of many minds." That part of the question relating to the combination of gold with porcelain, so combined under the blow-pipe as to produce a perfect result, is one that cannot be gone over too often, in consideration of the varying ideas as to the causes of imperfect results. The young man just starting out in his profession may be puzzled by opposing opinions, and every one having had a measure of success ought to contribute from his experience. As the result of some years' experience, and from failures as well as from some laboratory tests, I can deduce certain data. With this deduction is to be considered method, and as methods vary the results are to be judged from the method.

The causes of checks or cracks in the porcelain and gold work may be reduced to four heads—First, the slightest moisture in the investment when the flame is put on by blow-pipe; second, sudden though slight changes in temperature; third, any contact of flux with porcelain; fourth, the boxing in of porcelain by extension of the backing.

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*From Dental Digest.

How is one to know when the last trace of moisture has been driven from the investment? Small pieces are encircled with a tiny loop of picture-wire and invested in Chase compound. After the wax is all picked out the assistant takes the case in pliers and with a to-and-fro motion through the bunsen flame flame dries it. It appears to be dry when it is not yet so, for even after it smokes a little from the traces of wax melting, holding it close to a cold metal surface or mirror will show moisture. So much for the first cause.

My father had a long experience in metal plate work. In backing up gold cases care was taken with each separate backing, and before its final adjustment the porcelain surface beneath and all exposed parts were coated with a thin paste of whiting and alcohol. He said distinctly that liquid flux coming in contact with porcelain would check it. I wonder if other of the older dentists believed that by flooding their work with flux they obtained water-tight joints.

The best fitted backing of either pure gold or platinum is but approximate to the surface of porcelain and pins, and flux can work in, but the coating of whiting prevents contact where it is not wanted. The heating up of the work may be progressing with the drying out, during which the surfaces to be flowed with gold are touched by the flux on a camel's hair pencil and small pieces of solder are laid all over the backing and cap. When it is proven that the piece is fully dry it is gradually heated up in the bunsen flame. Meanwhile the soldering block is under the blast of the blow-pipe. This is an asbestos block upon which pieces of glowing charcoal the size of a pea form a nest for the investment. The investment is transferred at a dull red to this block. The large flame is put all around the piece at first. After the soldering is completed the work is protected by a previously heated cover. By this method there are absolutely no sudden variations of temperature, and it is of course true that the smaller the investment the greater the care necessary in this respect. This disposes of three causes of checking, and it remains now to examine the subject of backing porcelain with either gold or platinum.

Taking for example any one of the six anterior teeth, the porcelain is at first ground to the root face or cap, then the incisive edge and its approximating sides are ground to an angle of about 45 degrees, and the tooth placed in water and boiled to remove wax. Gold is preferable to platinum in the majority of cases, and when pure and annealed it is as easily adapted as the thinnest platinum and will burnish clear to place as the latter will not. After adjustment the slightest pinch of the cut back pins will hold it securely if the piece has been properly punched.

Now with the finest flat-face file the backing is finished up to the outer edge of the porcelain with push cut only. The extension of the backing beyond the facing is wasteful of material, time and labor, and wholly unnecessary, besides being risky if curled at all upon the porcelain.

In conclusion, it may be said that there has been evolved nothing as yet that equals the Richmond crown for correct alignment, and at the same time preservation of root substances and form—both outer and inner, and there is nothing that stands heavy stress as well unless it is an all gold crown. Difficult as it often is to secure the most satisfactory results with other forms, one is not compelled to sacrifice substance in canal reaming for a Richmond crown as with other styles.

Iridio-platinum wire—preferably round—gauge 13 to 17, is at hand to meet the requirements of each case. True, the facings will snap off occasionally, but it is most often caused by inattention to the niceties of occlusion upon crowns in the anterior region of the upper jaw. It need never occur from peculiarities of articulation or from incision of food, because every piece of porcelain is protected upon its incisive edge, though wholly invisible from the front.

THE FILLING OF THE ROOT CANALS OF TEETH.*

BY M. L. HANAFORD, ROCKFORD, ILL.

I have now shown about fifty root fillings which have been made by dentists of far more than average ability. Our study would be incomplete if we fail to draw a practical lesson from the exhibit. Of the fifty fillings we may, by a rather liberal construction of the rule, say that fifteen are perfect or practically so—not quite one-third. Of the remainder, a considerable number are of good density and only lack more care and thoroughness in carrying the filling to the end. In some cases this seems inexcusable, there being a freely open canal beyond the filling. The metods of the different operators, after allowing for slight personal modifications, divide themselves into three classes:

First, the method of applying a material in the form of a solution by a pumping operation and to be followed by a cone of solid material.

Second, the introduction of an oil or other solvent into the root followed by a cone of hard material, with the intention of only partially dissolving or more properly softening it, and by a churning process working it into a pasty mass, which it is hoped, will fill every part of the canal.

The third class comprises those in which a solution of sandarach is introduced and followed by solid material in the form of cones.

The arguments for and against the first operation apply equally to the third class.

The argument in favor would, I suppose, be ease of manipulation, and the argument against, danger of too great fluidity and consequent shrinkage.

The arguments for and against the first operation apply equally conserving the integrity of the gutta-percha cone, thereby making it likely to be carried nearer to the apex of the root.

Of the fifty fillings studied, thirty-one were made by the gutta-percha solution method. Of these, ten are in the class of

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*Extract Dental Review.

"practically perfect." Nine were made by the introduction of some solvent followed by solid gutta-percha, of which number three are in the "practically perfect" class.

Three were made by introducing sandarach solution followed by gutta-percha cones, of which number one is perfect. The proportion in each case being about one in three.

Of eight *absolutely* perfect fillings, four are made partially with chloro-percha, two with the use of merely a solvent, one with sandarach and in one case the method is not stated. We may fairly conclude from the foregoing that perfect fillings may be made in any one of several ways, depending on the care and skill of the operator, and that no one method is entitled to be called the "best."

However, those who lean toward the discarding of chloro-percha (myself among the number) are probably entitled to assert that the larger canals are better filled with the more solid mass of material, and that chloro-percha does the best work in the smaller canals. Indeed these studies throughout have proven to me that the smaller canals are less liable to show leaky fillings than the larger ones.

TREATMENT OF INFECTED TEETH.*

BY L. QUINTIN, BRUSSELS.

Although the application of my treatment is based on the same *modus faciendi,* I believe, nevertheless, that it is good to classify the different cases that may present themselves in the following manner:

First. Teeth with mortified pulps, either pathologically or artifically, no periostitis having been brought about.

Second. Teeth with mortified or normal pulps, but suffering from periostitis.

Third. Teeth with complicated periostitis (abscesses, fistulæ, etc.).

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*From article in Dental Cosmos.

In the first class, where the canals have been cleaned of radicular *débris* by means of a Donaldson broach or hook, I inject in every canal hydrogen dioxid at twelve volumes. I then dry the canal by means of cotton fibres wound around a square broach, and introduce into the canal a paste of iodoform and five per cent. of formol. My first procedure is to close the apex or to get as near doing it as possible. The application of this paste is often followed by a slight sensation of pain, caused by the formalin; but I do not become alarmed on this account, for I even look for the production of this pain. After a few minutes all pain disappears. I then can fill the tooth immediately after. This is the method that I follow whenever I want to place a pivot crown in one sitting. I have no failures to record in this connection.

Second Class. Teeth attacked with simple periostitis. The first thing to be done is to liberate the canals from all foreign bodies. In this case I also use hydrogen dioxid, and do not apply any dressing. I only place a cotton pellet in order to prevent the entrance of food into the canals. At the next sitting, the periostitis being cured, I clean again the canals with hydrogen dioxid, and dry them with cotton fibres. I then introduce into the canals a few fibres saturated in a forty per cent. solution of formaldehyd. If the canals are too narrow I place a drop of formol at their entrance, and by means of a broach the antiseptic is pumped to the highest portions of the canal. I then leave in the canals a few fibres of cotton soaked in a five per cent. solution of formalin. At the next sitting I clean again the canals; I introduce my paste and fill the tooth. If necessary, I can do without the second sitting; I have done this several times without any bad effect. The case in which I was not successful belongs to this class, but I must also tell you that when the patient came to me it was the fifth time of her suffering from periostitis in the same tooth; moreover the conditions were very inauspicious. Her father and mother are arthritics, and she is a chlorotic. She asked me to relieve her as soon as possible by extracting the tooth. When I extracted the tooth, a second bicuspid, a cyst twice the size of the crown, came with it.

In the third class the treatment is more rapid, because often the canals have been cleaned with hydrogen dioxid and filled with the paste, the fistula healing in three to four days. Nevertheless, I have a small remark to make with regard to the incisors, especially when these teeth have fistulæ established for a long time. In such cases we must proceed with care, for the apex is, as a general rule, widely open; hence care must be exercised in order to prevent the passing of the paste through the apex and the coming in contact with the pericementum. I advise the use of the same amount of caution in the case of the canine. I have often observed that the treatment of this tooth has caused edema of the facial region. Nevertheless, there was no pain after percussion. I cannot explain in a positive way this particular sensitivity of the canine. This slight complication disappeared rapidly.

You are going to reproach me by saying that this treatment is not new. Certainly it is not, and I told you at the beginning of the paper that I undertook simply to describe a method which has given me very satisfactory results. I have derived benefit from the properties of hydrogen dioxid and from iodoform and formalin. I believe that in treating root-canals the aim should be to close up the apical foramen. This is why I use an iodoform paste that I force to the apical space. If in certain anemic or arthritic persons a slight irritation of the pericementum is sometimes observed, this disappears with the use of slight counter-irritation. I have never had to extract a tooth that I filled.

A SWAGED OPEN-FACE CROWN.

P. E. BAIN, WASHINGTON, D. C.

Take a plaster impression of the tooth to be crowned in an S. S. White partial impression tray No. 20; fill in impressions of other teeth, if there be any, leaving the tooth to be crowned standing alone. Trim all over-lapping parts of plaster from tray and allow to dry. When dry, place over the impression and tray a small rubber ring commonly used for dies in bridge-work, then pour the impression in Melotte's metal; allow it to cool, remove, and you then have a model of the tooth in metal. With a wheel bur go carefully around the metal tooth at the gum margin, cutting away the metal about the depth of the free margin of the gum. Smooth down with an inverted-cone bur. Now burnish tin foil around the tooth to secure a pattern by which the gold may be cut. Before swaging anneal the gold thoroughly. With a pair of pliers bend the gold about the metal tooth, and then burnish and swage to fit, leaving the ends overlapping at any point desired. Now carry it to the mouth, burnish about the tooth, trim and adjust. Remove and solder. Care should be used in polishing, as the crown is easily bent. He has swaged gold of No. 27 gauge, but thinner gold is preferable. The advantages of this crown are its simplicity and absolute adaptability so far as an open-face crown is adaptable.—*Cosmos.*

TREATMENT OF DIFFICULT PROXIMAL CAVITIES.*

BY W. A. SPRING, D.D.S., DRESDEN, GERMANY.

Large cavities extending beyond the margin of the gum are universally recognized as difficult, and many methods of treating them have been recommended. Some recommend a high heat gutta-percha. Another method much in repute is to fill the part of the cavity beyond the gum line with amalgam, and at a later sitting adjust the rubber and fill with gold. Some have been successful with building gold into the amalgam while it is fresh, using some kind of crystal mat gold to begin with. The late Dr. Marshall H. Webb is said to have been able to put the rubber dam onto any tooth no matter how high the cavity, and to have filled it with the electric mallet from start to finish. I have seen Dr. Young, of Leipzig, construct an instrument of thin steel which made it possible to push and hold the rubber above the margin of a cavity which was much beyond the gum line. It was beautifully done, but required some time to construct and was painful to the patient. While admitting on the evidence of the method just described that such cavities might be filled entire with the rubber, I repeat that for most of us they are practically impossible to adjust the rubber, and I beg to describe my method, which is simple and easy. One has first to contend with hypertrophied gum. Temporary gutta-percha stopping, cotton moistened with sandarach, and cotton moistened with some anodyne have all been recommended. I place a piece of asbestos paper moistened with oil of cloves over the pulp, then a small piece of cotton moistened slightly with carbolic acid against the gum, and over this a large piece of cotton moistened with a thickened solution of tincture of benzoin, packing the cotton tightly. This seldom fails to force out the gum in twenty-four hours. The benzoin would keep it sweet if it remained a week. It also makes it nearly as hard as sandarach and never causes pain to the pulp. The cavity should be opened from the grinding surface, frail margins chiselled away as much as necessary, but not filed. Retaining pits are not needed, but care should be observed to have the cavity slightly retentive in form, even the part beyond the gum line. I always use the matrix for these cavities, but before placing it I touch the gum with the smallest possible piece of cotton moistened with trichloracetic acid. It turns the gum white, and prevents moisture of any kind. I then napkin the mouth and adjust the matrix. I disinfect with alcohol, which contains a few drops of oil of cinnamon. This has the advantage of drying very rapidly. I then fill one-third of the cavity with tin and gold, one to six. The pellets, cut one-eighth of an inch long, should be placed side by side, each one reaching the bottom of the cavity. As soon as one layer of pellets is placed as thick as they will easily go, they are all condensed with a large pointed instrument, then given a few sharp blows with a hand mallet. One layer is usually enough to more than fill the portion of the cavity beyond the gum line. The matrix is then removed, the rubber adjusted, the matrix again placed, the gold washed with alcohol and dried with hot air, and the filling completed. I finish with cohesive gold, but frequently put in one more layer of tin and gold before doing so. The connection should be made with some form of crystal mat gold. As soon as filled the matrix is removed, the filling burnished and then polished with thin strips. The tin and gold part of it is so soft and so nearly perfect in form on account of the matrix, that it requires but little polishing, an obvious advantage in time, as well as comfort to the patient. It is tougher than non-cohesive pure gold and takes a polish as smooth as cohesive gold. The final polish should be given with finely pulverized pumice on thin linen tape.

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*Extract from article in Dental Review.

I beg to briefly call attention to the advantages of such a filling as I recommend. In the first place, it is a wonderful preserver of teeth. It is soft and pliable, yet tough and strong. In its introduction, no instrument comes near enough the cervical margin to possibly injure it. It is an excellent nonconductor. Being non-cohesive, moisture would not harm it, though with the precautions mentioned not one case in a hundred need get moist.

TWO STYPTIC REMEDIES.*

BY DR. E. WEUNSCHE, BERLIN, GERMANY.

For excessive, continuous hemorrhages after extractions or incisions, I would like to call special attention to the fluid extract of hydrastis canadensis, twenty to thirty drops to be taken every hour. Usually, the second dose is sufficient to stop vehement bleedings. For many years I have always had some handy, and if necessary I give the first dose myself.

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*Extract Items of Interest.

For local treatment, I warmly recommend penghawar yambi, called also penghawar yambee, or penghawar djambie. P. y. is fern wool. It is the capillary developed scales of roots of some kinds of fern, which have in past centuries been used as styptic remedies with the greatest success. The original plant is cibotium baranez j. sm. (aspidium baromez willd). The stem of the fern (habit. Sunda Isl., Indo-China, South China), is covered densely with yellow filaments about three cm. long. Under the name of pako kidang there are in the market somewhat darker filaments of Javanese and tropical American tree ferns, which are also very valuable as styptic remedies. The fern filaments eagerly absorb humidity from the blood, cause quick coagulation of the serum and filling up of the bleeding tissues. Before pressing a tuft of fern filaments into the wound, it is better to crush the filaments in order to bring the thin walled canals of the filaments more extensively in contact with the blood.

The filaments contain tannin, resin and a kind of wax. A plug of penghawar yambi pressed into the wound stays bleedings astoundingly quickly, and has the great advantage, in that wounds heal speedily and without any suppuration. For excessive bleedings local application of p. y. is usually sufficient. An incorporation of both above described styptic remedies into the dentist's medicine chest, will afford many a colleague good and quick aid, and I recommend them heartily.

BACKINGS FOR CROWNS AND BRIDGES.

H. S. ABENDSCHEIN.

The doctor uses all his scraps of gold, keeping the 18-, 20- and 22-carat gold in separate boxes. Whatever carat backing he intends to use, he melts the scrap, making a button of gold, which, with a steel hammer, he flattens out so it will be thick at one end and thinner at the other, as thick or as thin as necessary for the case in hand. He then selects a facing, cleans off all the wax, takes a piece of paraffin sheet-wax and presses it on the back where the pins are on the tooth, then cuts off the excessive wax around the sides. He now lays this wax piece on the flattened gold button, and, with an excavator pointed for use as a punch, marks where the holes are to be drilled. He then carefully drills the holes and tries the tooth on to see if correct. If the fit is a little tight, he reams out with a punch. He then lays this drilled flattened backing on a flat Stub's file, and rubs it down to fit the porcelain back. He now puts it on the tooth and marks the sides, then removes it and cuts off excess with a pair of scissors if thin, or a fine saw if thick. He now takes 24-carat plate of 32 or 36 gauge and presses it over the pins with the thumb, letting it extend one-sixteenth to one-eighth inch. This he burnishes on to the back of the tooth and over the face, then puts the prepared backing on and bends the pins slightly together, invests in "sump," cutting all the excess of sump away, leaving only enough to protect the tooth while soldering. He also cuts away the sump from the backing side enough to expose the 24-carat gold slightly, so as to see where to solder. He then heats it thoroughly and solders only where the backing joins the 24-carat gold and around the pins; it requires very little solder.

This method will not check or crack porcelain facings. When cooled off it should be removed and finished. The 24-carat gold can usually be cut away with the scissors. If not, grind it away. At the cutting edge the gold may be left, if it be desired that it shall have the appearance of being tipped. In attaching these finished backings and tooth to a gold crown, bevel the side next to the gold crown, wax and invest in sump, as above, and there is the beveled place only to solder.—*Cosmos.*

SILVER CAPSULE IMPLANTATION.

R. E. PAYNE, NEW YORK.

In this clinic the operation was performed on a woman of twenty-five years, of frail and rather anemic constitution. The upper left first bicuspid was missing. A small fragment of the root remained in the socket. This he extracted after having injected five drops of a two per cent. solution of cocain on each side of the tooth. He then enlarged the socket by means of a Walker-Younger trephine, which made the size of the alveolus the same at all points. After this he selected a silver capsule, reduced it to the size of the trephine used, and fitted it in the socket for trial. He then made a groove on both sides of the socket, which he washed out and dusted with iodoform. After this precaution had been taken he placed the capsule in position and filled it two-thirds full of kneaded rubber. By making pressure against the rubber, the capsule spreads in the direction of every inequality and into the two grooves at the sides of the socket. It is not necessary to ligate the capsule, as it is held securely in place by its spreading. Into this capsule he fitted a crown with a porcelain root and set it with gutta-percha. After a few weeks' time this crown can be removed from the capsule and reset permanently with cement.—*Cosmos.*

A METHOD OF INSERTING AN AMALGAM FILLING WITH OXYPHOSPHATE OF ZINC LINING.

JOS. HEAD, PHILADELPHIA.

Dr. Head did not claim that the method was new, but gave as his excuse for performing the operation that any method which would cause adhesion of the amalgam to the cavity walls was of such importance as to make it impossible to overestimate its value.

He prepared the cavity in the usual way, with clean, sharp edges and generous undercuts. The rubber dam was applied, and the amalgam mixed to a firm, stiff paste. The oxyphosphate of zinc was then mixed to the consistence of cream and inserted into the cavity, when the plastic amalgam was forced into the center of the cement and pressed to all portions of the cavity, thus squeezing out all the oxyphosphate except a fine layer that everywhere rested between the metal and the tooth-substance. The edges were then scraped and cleaned. The rest of the amalgam was squeezed dry of its mercury and the filling finished in the ordinary way.

In the course of his talk he also demonstrated how nicely a Donaldson nerve broach could be used to remove the excess of amalgam from the cervical margin of the cavity. This was done by rubbing the broach between the gum and the tooth and sawing upward until the surface was smoothed and cleaned.

He also showed his removable porcelain bridge made entirely of porcelain soldered to a double gold clasp that filled the vacancy in cases where the molars were missing with only the bicuspids remaining for abutment.—*Cosmos.*

THE IMMEDIATE AND BLOODLESS REMOVAL OF THE PULP.*

W. L. REED, MEXICO, MO.

After more than two years' practice of pressure anesthesia for the immediate removal of pulps, I am able now to do it with less pain, less time, and very often without a drop of blood.

In the first place, make a very gentle start, and better and quicker results are obtained with light pressure and little pain than by commencing with heavy pressure and consequently greater pain. In this work I have tried every known solution of cocaine and eucaine, and now use exclusively a saturated solution of cocaine and glycerine. First, because it is a solution that will keep indefinitely. Secondly, I use glycerine for its mixable qualities; in case of actual exposure there seems to be an osmosis effect that is not obtained by any other solution. In many cases there is an affinity of the exposed pulp for glycerine, and anesthesia is obtained almost without pressure. I suppose it is the experience of every one that if the pulp has been treated once with arsenic and is not dead, it is very much more difficult to control.

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*From Western Dental Journal.

My method, supposing we have a freshly exposed pulp, is to syringe the cavity with warm water. Apply the dam for best results. Remove whatever decay possible without the least pain. Apply a small pellet of cotton with cocaine-glycerine. Fill cavity with black vulcanite rubber. Apply slight pressure and instruct patient to raise left hand, or any other signal, for the slightest pain. Heavy pressure is not required at the start; in fact, I think it prolongs the time for anesthesia. When there is no response to pressure, very carefully expose the pulp. Endeavor not to cut or bruise the tissue. If there is pain, use medicine and pressure again. When pulp-chamber is well exposed and no pain, use the rubber without cotton. Use strong, heavy pressure; keep it up for a few moments. Try to force the rubber up into the pulp-canals, and very often the pulp will be squeezed out dry and the broach will extract it almost as a white thread.

I do not have this delightful result every time, but I do very often, and my percentage of successful cases is constantly on the increase.

When you do get anesthesia, don't be in too great a hurry. Use the pressure a little longer, and if you do get a bloodless operation, it saves much time in the long run. Also, in the front teeth I think a better color is preserved.

Another use for this solution is where part of the pulp is left in the distal end of the root and very sensitive; use the cocaine-glycerine on a root-plugger like filling a root-canal with chlora-percha.. Complete anesthesia is produced very quickly.

TREATMENT OF HYPERTROPHY.

H. J. GOSLEE, CHICAGO.

In instances where an exuberant growth or hypertrophy of pulp or gum tissue is present, or may have almost entirely covered the end of the root, some difficulty may be experienced in applying the dam and pursuing the necessary course of treatment.

Both may be greatly facilitated, however, by the immediate excision and removal of such tissue at the first sitting, and, if the continuity of the root be destroyed by disintegration, or its length will not admit of the application of the clamp and rubber dam, a temporary restoration can be easily effected by adjusting a band of German silver closely encircling the circumference of the root, as soon as the suppression of the hemorrhage, by the use of styptics, will permit.

Such a band, if properly and carefully fitted to the neck of the root, and trimmed so as to possess no sharp or irregular edges, and not to interfere with the occlusion, will at once admit of the application of the dam by adjusting the clamp over it, and may remain in place and be worn with comfort until the necessary treatment and final filling of the canals has been accomplished.

If filled flush to the edge with temporary stopping at the end of each treatment, it further serves to hermetically seal the dressing within the root, and to compress the tissues so as to afford a free exposure of the periphery.—*Extract Items.*

PLATINOID CROWN SCREW IN RESTORING TO USEFULNESS BADLY DECAYED TEETH.

W. W. DUMBRACCO, BALTIMORE.

The root or roots are prepared in the usual manner with apical foramen or foramina sealed; then by means of long, narrow, flat-nose pliers one of these screws is easily and readily inserted, no matter whether it be a central or wisdom tooth under treatment. The advantages of such screws over the ordinary common iron screw so generally used lie in the fact that they are non-tapering, hence not likely to split the root, non-corrosive, will not cause discoloration of the gold covering them, flat-end, making insertions easy, quick and safe. They are superior to gold screws, because made of a harder metal; the threads will not dull, but will cut readily into tooth-structure. By means of these screws he has been able to restore to usefulness many roots that might otherwise have been extracted, and to securely fill molars and bicuspids that might have called for crowns.—*Cosmos.*

PROCEDURE IN CASE THE POST OF AN ARTIFICIAL CROWN REMANS BROKEN OFF IN A ROOT.

F. W. SAGE, CINCINNATI.

I have several times in such cases, where the removal of the broken post seemed out of the question, made a Richmond crown without a pin—that is, depending upon the band and cement alone to hold the tooth. This may seem hazardous, but, if the band be made to embrace the root even hardly more than half a line, the cement will hold it very firmly. I have used the same method successfully in cases where the pulp remained alive and unexposed, in preference to exposing and devitalizing. In one instance a tooth so crowned came off after nine years. I replaced it, and ten years later, having occasion to remove the same in the operation of supplying a bridge, I had to cut the band and use considerable effort to remove the tooth.

Of course the question of occlusion must be considered in attempting this operation. For incisors and canines the operation will be found feasible and satisfactory under ordinarily favorable conditions.—*Cosmos.*

HEMOSTATIC AFTER TOOTH-EXTRACTION.

Cotton-wool soaked in oil of turpentine and pressed into the bleeding cavity after tooth-extraction will check the hemorrhage promptly.—*Medical Summary.*

SAFE METHOD OF TIPPING TEETH WITHOUT CHECKING PORCELAIN.

G. J. SMITH, BALTIMORE, MD.

Grind the tooth to fit the case, beveling the cutting edge on the lingual surface.

Adapt 24-carat gold, No. 35 gauge, to the back of a tooth, allowing it to extend about half a line's distance beyond the cutting surface; all other margins to be flush with tooth as usual.

Carefully remove or tease backing from the tooth, so as not to alter its shape; paint surface of gold except the cutting edge with whiting, then solder on pieces of gold to the required thickness.

Replace the backing on the tooth and approximate the pins with a pair of flat-nose pliers. By this means you will obtain a closely fitting tip and obviate the liability of checking the teeth during the process of completion.—*Cosmos.*

METHOD OF IMMEDIATE ROOT CANAL FILLING.

DR. TRALLEIRO.

After cleaning the canals and washing them with bichlorid solution carry gradually into the canal a platinum explorer heated to a white heat; then apply a formol dressing, direct a stream of hot air into the canal, and fill it with the following paste: Zinz oxid and xeroform an equal quantity, and eugenol sufficient to make a paste.—*Cosmos.*

MATCHING SHADES IN PORCELAIN.

E. T. DARBY, PHILADELPHIA.

There is nothing that requires greater care or more prolonged experience than matching shades in porcelain. And just in proportion to the lowness of the temperature at which porcelains fuse is it difficult to match shades. Porcelain of the same composition when fused at a higher temperature than the porcelain represented in the sample will have some of the coloring matter burned out of it, and the result will be a shade which does not match. Just in proportion as porcelains fuse at a higher temperature, is it easier to match shades and tints.—*Dental Cosmos.*

CONTINUOUS GUM WORK.

E. LLOYD-WILLIAMS, LONDON.

Mr. Lloyd-Williams showed a method of doing continuous gum work without soldering, which consisted of securing the teeth by means of an investment (asbestos, fire-clay, and plaster) on their lingual aspect, strengthened by struts of clay pipe stems to prevent contraction and increase the strength. The teeth were left uncovered on the labial surface to facilitate the packing of the body for a first firing. For full cases he pointed out the disadvantages as compared with soldering, but strongly advocated the method for sections intended for completion with vulcanite. A section of six teeth was fired in a "Weiss" electric furnace, Ash's high-fusing body and enamel being used.—*Journal British Dental Association.*

A SIMPLE AND SATISFACTORY METHOD OF FILLING ROOT CANALS.

T. MANSELL, EDINBURGH.

After devitalizing, the nerve, or as much of it as possible, is removed with a Donaldson root canal cleanser; the canal is thoroughly dried by means of a few threads of cotton wool twisted round a very fine Swiss broach. Afterwards a small portion of a paste composed of powdered iodoform and oil of cinnamon is placed in the root canal and worked up to the apex by means of an old Donaldson which has been polished quite smooth, then threads of cotton wool or bibulous paper are carried up the canal by means of the fine broaches and left there; the paste and cotton wool forming the root canal filling. Gutta-percha is used to fill the pulp cavity and the permanent filling inserted. The method I have tried to demonstrate and describe is comparatively simple and the dressing is not difficult to remove in case of necessity. In making sections of roots which have been filled in this way I have found that a considerable portion of the dentine has become stained yellow, which would tend to show that the paste permeates the dentinal tubes and renders the dentine thoroughly aseptic through a good portion of its substance. I have followed this method of filling root canals with great success for over fifteen years.—*Journal British Dental Association.*

A DEVICE FOR CATCHING STUMPS IN EXTRACTING.

Mr. C. M. Cunningham, L.D.S., showed a small square of netting 5 inches square with meshes ⅛ inch in size, made of No. 24 cotton thread. The net is placed well back over the fauces and held in position by the left hand to prevent roots slipping into the throat during operations under long anæsthesia. The moisture of the mouth helps to retain the net in position.—*Journal British Dental Association.*

SIMPLE METHOD OF CROWNING SINGLE-ROOTED TEETH WITHOUT LACERATION OF THE GUMS.

H. W. MESSENGER, ENGLAND.

In this method the root of the tooth should be prepared in the following manner: After cutting off the crown and grinding the root level with the gum, the nerve canal should be opened just enough to allow the point of an Ottolengui facer (several of which, different sizes, should be kept in stock) to revolve easily. A countersunk hole is then made in the root to the depth of 1/16 inch. A metal disc, No. 9 thickness, with a pin-size hole in the center, is next inserted, which must be a perfect fit. A pin is next fitted as far up the root as possible and soldered to the disc, after which a piece of No. 4 platinum foil, a little larger than the end of the root, with a pin-hole in the center, is burnished on to the root, the excess of platinum is cut off, and the foil is soldered to the pin. Next select a flat tooth and fit it to the edge of the root, and if for gold back, wax up with hard wax and invest in the usual manner. If for an all-porcelain crown, all the metal used must be platinum, and the tooth, when fitted to the root, should have its pins bent round the post and fused in the ordinary way. The discs (all sizes) and pins should be kept in stock. The whole process can be completed under an hour.—*Journal British Dental Association.*

TREATMENT OF SIMPLE GINGIVITIS.

G. T. CARPENTER, CHICAGO.

Correct all malocclusions and restore perfect contour to crowns. Remove all local irritants and deposits and make a light application of tincture of iodine to affected parts, and give instruction to prevent irritation and abuse of gums; change diet from mashed vegetables of all descriptions, or soaked or cooked in milk, for dry or Swedish toast, whole wheat, or grape-nuts to grind thoroughly fine with the teeth, incorporate with the saliva, and swallow. This treatment should be followed, especially with children suffering from gingivitis.—*International Dental.*

ANTIDOTE FOR ACONITE.

A. W. HARLAN, CHICAGO.

In a case of accidental poisoning, the patient having swallowed some tincture of aconite with which the gum over the roots of a large molar was being painted, 20 drops of laudanum, the dose being repeated after a few moments, with ammonia by inhalation, the patient being laid on the floor, brought him around all right in about 30 minutes. This antidote is not given in the text-books.—*Dental Review.*

HOW TO DISSOLVE CAOUTCHOUC.

When it is desired to dissolve caoutchouc, a very satisfactory solution is obtained if the caoutchouc is first freed from water. It is advisable to dry the caoutchouc for some time before dissolving, and a very excellent plan is to subject it to a previous boiling in soda solution or caustic soda lye, with a careful washing and drying.—*India Rubber World.*

ALUMINUM ALLOY FOR MODELS.

It is claimed that an alloy of one part of zinc to three parts of aluminum is ten times as strong as zinc, and can be used as a substitute for brass. It is also said to melt at 1000° F., and to be much cheaper than brass, and to cast easily and readily.—*Stomatologist.*

SOCIETY.

INSTITUTE OF DENTAL PEDAGOGICS.

The ninth annual meeting of dental college teachers was held in Pittsburg, December 31, January 1 and 2.

The meeting was well attended and a most profitable one in every way. Much credit is due the president, Dr. G. E. Hunt, and the executive board, Drs. Cattell, Whistlar and Willmott, for so successful a meeting.

Officers elected for the ensuing year are: H. J. Goslee, President; J. D. Patterson, Vice-President; H. B. Tileston, Secretary-Treasurer.

Dr. D. R. Stubblefield was elected a member of the executive board to take the place of the retiring member, Dr. D. M. Cattell.

AFTERMATH.

PERSONAL AND MISCELLANY.

DIED.—DR. CLIFFORD FINLEY STIPP, the only son of J. A. Stipp, of Toledo, O., died November 21, 1901, of typhoid pneumonia, after a severe illness. He graduated from the College of Dental Surgery of the University of Michigan in June, 1899, and has since been engaged in practice at Toledo. He was associated in business with his father, to whom his death is a severe loss. He was a well educated and highly accomplished young man, and would no doubt have made a good citizen and a faithful practitioner, and his untimely taking off is to be greatly deplored. The father has the sympathy of a large circle of professional and social acquaintances and friends.

DR. C. N. JOHNSON is now editor of *The Dental Review*, Dr. Harlan having retired from the editorial tripod. Success, Brother Johnson.

A TOOTH BRUSH PLANT.—One of the most curious plants in the world is the tooth brush plant, a species of creeper which grows in Jamaica. By cutting a piece of the stem and fraying the ends the natives make a tooth brush, and a dentifrice to use with it is prepared by pulverizing the dead stems.

ROYAL HONORS PAID TO AN AMERICAN DENTIST.—Royal honors were paid to the remains of Dr. Alandro Read, an American dentist who died in Copenhagen, Denmark, December 29, having resided there since 1860. Dr. Read was a native of Pennsylvania, and occupied much the same position in Copenhagen as the late Dr. Thomas W. Evans, of Philadelphia, did in Paris. He was patronized by the royal family of Denmark, the royal family of Sweden, the Dowager Empress of Russia and Queen Alexandra, and enjoyed the friendship of members of the various royal families, diplomats and other notabilities. The deceased declined to accept a title and other honors and retained his American citizenship. Wreaths from the royal family of Denmark were deposited on Dr. Read's coffin on the day of the funeral.

THE

DENTAL SUMMARY

VOL. XXII MARCH, 1902 No. 3

CONTRIBUTIONS.

PARTIAL DENTURES.

DR. STEWART J. SPENCE, HARRIMAN, TENN.

Having lately read in the December issue of the Journal an article by Dr. H. M. Kirk, entitled, "Partial Dentures and Their Retention," I am induced to add to the doctor's excellent article one other method of retaining partial dentures:

Let us suppose a mouth where the lower jaw retains a few loose, straggling and elongated teeth. The gums are largely receded and the necks of the teeth exposed. This is an ideal case for the method I describe.

We all know how difficult—almost impossible—it is to take an impression of such a case. The teeth form dovetailed spaces where one or more is lost. The necks are narrower than the crowns. It is impossible to get a correct impression of these necks and spaces; and even could we do so, it would be impossible to get a plate to fit in there without cutting away the vulcanite till the correctness of fit is lost.

But it *is* possible to get a correct impression of a certain portion of each of these teeth,—namely, the point of widest circumference, lying usually about half way between the occlusal surface and the neck of the tooth. Even modelling composition will give this correctly, however much it may drag at the constricted necks. This point of widest circumference is the part clasped by gold clasps. Now, instead of a gold clasp, my method is to clasp this point with vulcanite; all around it, and every tooth. Before waxing up, scratch a mark around this widest portion of each tooth as shown on the plaster cast, and wax up to this scratch. Your vulcanite plate will then hold every natural tooth in the mouth with a close cut, mild grip, not allowing any food to wedge in between plate and tooth. Underneath there is, of course, lots of space. The plate does not hug the necks of the teeth. But is this an objection? Are not the gums immediately around the teeth of such a natural denture as I am describing often chronically inflamed and intolerant to the pressure of a vulcanite plate? The giving them "a wide berth" is perhaps the best thing for them. The food cannot get to them, if the plate has been carefully and properly made to hug the bulging portion of each crown, and it affords them considerable shelter from cold air and drinks. It steadies them and they steady it.

Moreover, the added strength given to a lower partial plate by carrying it along the labial as well as the lingual side of the ridge is a virtue. Of course, many modifications of this method are possible. It is not always advisable to apply it to every tooth; it may be applied to only one of them. The principle is, encircle with vulcanite the widest portion of the crown, because you can get a correct impression of it.

NITROUS OXIDE AND OXYGEN IN DENTAL SURGERY.*

BY D. H. ZIEGLER, D. D. S., CLEVELAND, OHIO.

The year 1844 is memorable as having witnessed the greatest evolution in modern surgery. In this year Dr. Horace Wells demonstrated to the world that it was possible to perform minor surgery without the slightest pain being experienced. From that day up to the present time special attention has been paid toward improving the methods of administering nitrous oxide for the extraction of teeth.

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*Read before the Ohio State Dental Society, December, 1901.

My attention was first directed to this subject last June, when several of the leading surgeons of Cleveland were at their wits' ends to anaesthetize a patient for an operation. The patient was in such a condition that chloroform and ether were out of the question. At this late day it was again necessary to call upon the dental profession to help them out of their dilemma. Dr. J. F. Stephan and his nitrous oxide and oxygen machine were pressed into service. For forty-five minutes I witnessed a perfect type of anaesthesia. The success of the operation has left a profound impression on my mind.

The only excuse I have in presenting this paper is that it may bring it more universally before the notice of the members of this society. The statements which I will present are not so much from my own observation as they are of men who have made a detailed study of this subject. As early as 1868 Dr. Andrews, of Chicago, published several cases in which by mixing nitrous oxide with oxygen he obtained a more satisfactory form of anaesthesia; but, strange to say, his observations failed to attract the attention of the profession, and it was not until ten years later that Paul Bert again drew attention to the subject, but his conclusions were that it was impossible to produce anaesthesia with such a mixture without increasing atmospheric pressure, but it soon became clear from the observation of other investigators that such an increase was not absolutely necessary. The first successful attempt to administer it at ordinary atmospheric pressure was made by Dr. Hillischer of Vienna, but I feel that much credit is due to Dr. Hewitt of the Dental Hospital of London, in devising an apparatus which made it possible to administer the combination successfully, also for the scientific research which he has made in connection with the two gases.

When nitrous oxide was first introduced, the necessity of excluding all atmospheric air was considered necessary to produce anaesthesia; but from time to time cases were recorded in which by alternate inhalation of nitrous oxide and air, it was found possible to maintain more or less complete anaesthesia, until to-day it is never given pure by men who are considered authority on the subject. With the pure gas asphyxial phenomena rapidly follows; this occurrence is incidental and not necessary to produce true anaesthesia, as will be pointed out, the asphyxial symptoms of an ordinary nitrous oxide inhalation become attenuated, or even altogether vanish when oxygen is added in suitable proportions; and there can be no doubt that in employing the pure agent, we are in a sense committing a physiological error. Why should the patient be subjected to an inter-current state of asphyxia when that state is not essential to the anaesthesia? I shall endeavor to point out that with a proper percentage of oxygen we are able to get a more tranquil stage of anaesthesia and obviate nearly all the unpleasant symptoms of pure nitrous oxide anaesthesia.

Anoxaemic convulsions are prevented even with a small per centage of oxygen. During the inhalations of nitrous oxide with oxygen up to 4 per cent, some degree of anoxaemic convulsions is very common. But when once 5 per cent of oxygen is reached, very little convulsive movement is observed; and with 6 per cent and over, there is no such movement visible.

With regard to alterations in the patient's color, we find that with less than 11 per cent. of oxygen some degree of lividity is present. With 8, 9 and 10 per cent of oxygen the alteration is very slight. The effect of oxygen in preventing stertor is very marked; with percentages as small as 3, 4 and 5 the ordinary stertor of pure nitrous oxide loses its irregular character, and becomes replaced by a regular snoring sound, similar in its type to that of ether and chloroform, and as the percentage of oxygen is increased the snoring becomes less pronounced. With 20 per cent of oxygen the snoring altogether vanishes. Phonated sounds are far less common under nitrous oxide and oxygen than under nitrous oxide and air, still they are liable to arise if the percentages are too large or too small. With the proper proportion of oxygen reflex and excitement movements are uncommon, but are likely to assert themselves with too great a percentage of oxygen. As regards the general result, Hewitt gives the following tabulation: The mixtures for adult males are those containing 5, 6 or 7 per cent. of oxygen, and mixtures containing 7, 8 or 9 per cent are best for females and children.

THE ADMINISTRATION.

In order to obtain good results, careful attention must be paid to detail. It requires more skill to produce a good stage of anaesthesia than with the pure gas, but if properly administered there is no comparison.

In the first place, the type of patient must be considered. The best subjects are middle aged and elderly women, weak middle aged men; young women are also good subjects. These patients are very easily anaesthetized by following the general routine of administration. Young men of strong, robust constitution require considerable attention; if we increase the percentage of oxygen as rapidly in these cases as in the former, they may give trouble by reason of muscular spasms, but with the proper percentage of oxygen these symptoms are attenuated. Alcoholic subjects under nitrous oxide display a great tendency toward jactitation, but with a mixture rich in oxygen, which will make it necessary to prolong the administration, good results are to be obtained. Patients with adenoid growths, enlarged tonsils, easily develop asphyxial symptoms under pure nitrous oxide, but with considerable percentage of oxygen these patients can be anaesthetized without submitting them to this physiological condition.

In the second place, make sure that you have a sufficient supply of the two gases on hand, and that the apparatus is in perfect working order. The face piece must fit with perfect co-aptation so as to exclude all atmospheric air; an imperfect fitting face piece with pure nitrous oxide might not be detrimental, but in case of the mixture it might lead to partial or complete failure. After adjusting the face piece, and the administrator sees and hears that breathing is free, the indicator is turned to "2." Nitrous oxide with a small percentage of air will thus gain admission to the lungs; after two or three seconds the oxygen indicator may be turned to "3," and in a few seconds more to "4." In about fifty seconds from the commencement of the administration, the indicator may as a general rule, be moved as far as "5," and in 20-30 seconds more it may usually be allowed to point to "6," "7" or "8." In dental operations this is usually all the oxygen required to produce a tranquil stage of anaesthesia. This mode of procedure is for a typical case; but as different subjects require a greater or less percentage of oxygen, the successful anaesthetist is one who can pilot his patient along a narrow channel; he must be able to see at a glance what the future effect of an increase or decrease of oxygen will be.

For instance, in children, anaemic subjects, and debilitated persons, we may increase the oxygen indicator more quickly; while in strong, robust, muscular men, the indicator must be moved much slower.

On the other hand, should phonation, laughter, excited movement, or struggling assert itself, the percentage of oxygen must not be increased. It may even be necessary to turn back the indicator for a few breaths, but not necessarily till all symptoms of excitement have subsided, knowing that they will subside in obedience to the lessened proportion of oxygen. The administrator must avoid the clonic respiratory movement, so common under pure nitrous oxide, which prevents a free and lengthy intake of the anaesthetic; and again an inconvenient signs of incomplete anaesthesia.

The two bags must be kept as nearly as possible equal in size. It is rarely necessary to replenish the oxygen bag for a dental operation, but the nitrous oxide valve must be kept constantly working.

Generally speaking, surgical operations may usually be commenced in 2½ to 3 minutes after the face piece has been applied. And at this moment it is important that the patient's symptoms should indicate a diminution, rather than an excess of oxygen in the system.

When the typical nitrous oxide and oxygen anaesthesia has become established, the patient's condition will be suggestive of a natural sleep; the respiration is remarkably calm and perfectly regular. The loud stertor of an ordinary nitrous oxide administration is never met with; the thoracic and abdominal movement so often witnessed under pure nitrous oxide are strikingly absent, owing to there being less venous engorgement, and hence less swelling of all parts within the upper air tract. The color of the face and lips varies; some patients become a trifle paler than usual, while in others the color becomes more florid. The duskiness and lividity so common under pure nitrous oxide, are, generally speaking, entirely absent. The pulse is invariably accelerated; but is neither so quick nor so small as the pulse under pure nitrous oxide.

Clonic muscular movements are very conspicuous by their absence, but a minor degree of tonic spasm in the muscles of the neck, back and extremities may be manifested.

The pupils as a rule are of moderate size; wide dilation, such as met with under nitrous oxide, is very rare. The conjunctival reflex is, in the vast majority of cases, quite absent.

Anaesthesia is known to be present by one or all of the following signs: (1) The conjunctival reflex is lost. (2) The breathing is regular and tranquil, or is softly snoring in character. (3) The arms are flaccid. (4) The eyeballs are fixed or present slight oscillatory movements.

The after effect is usually very satisfactory, but not quite so speedy as from nitrous oxide alone. The patient will be a trifle more dazed; nausea or actual vomiting, although rare, is more common than after nitrous oxide alone.

Dr. Hewitt in sixty-nine carefully timed operations finds a gain of fourteen seconds in the average period of resulting anaesthesia. By comparing the pure nitrous oxide anaesthesia with a mixture of oxygen everything points in favor of the latter.

We are able to obviate nearly all the unpleasant effects of the pure gas; our patient at all times presents a more natural appearance, and an average gain of fourteen seconds is certainly worth considering.

The question will naturally arise, cannot the same results be accomplished with atmospheric air? We have men with us who no doubt will say they can, and I honestly believe that they are sincere when they make those statements; but their statements may be merely from a local observation, and not from a purely scientific investigation. Before we criticise or condemn a method, I feel that we ought to do so only after studying both sides of it. Cases are recorded in which general surgical operations lasting an hour or more have been performed under nitrous oxide and air, but I will try to show that there is little to be said in favor of this mixture, as compared with oxygen. So let us draw our comparison from Dr. Hewitt's scientific investigation of 106 cases.

He employed a specially made gasometer, by which he could administer any desired percentages of nitrous oxide and air. He found that anaesthesia could be obtained provided the latter did not exceed 30 per cent. With 33 1/3 per cent. of air he failed to produce complete anaesthesia. With small percentages of air the symptoms were practically identical with those produced by the pure gas. The shortest anaesthesia was met with when employing 3 per cent. of air (30.8 seconds) and 30 per cent. of air (29.7 seconds). The longest average anaesthesia being recorded with 14, 16 and 22 per cent. of air. It is an interesting fact that there was more anoxaemic convulsions with 3 and 5 per cent. of air than with pure nitrous oxide; while the nitrous oxide and oxygen experiment showed that with 5 per cent. of oxygen very little convulsive movement was observed. Lividity and cyanosis were also more evident with small percentages of air than with pure nitrous oxide, and there was no marked change until 30 per cent of air was reached. With this percentage he had an average operating period of 29.7 seconds. Compare this with 6 per cent. of oxygen, we have a very slight lividity and an average operating period of 44 seconds, or a gain of 14.3 seconds.

There was less phonation under nitrous oxide with small percentages of air than under nitrous oxide itself; but with a mixture containing more than 10 per cent. of air phonation was common; while under nitrous oxide and oxygen phonated sounds are far less common than under nitrous oxide and air. Out of 153 cases he noted it more or less in 29. So far as the general result of his investigation, it showed that with percentages of air between fourteen and twenty-two a very decided improvement was manifested over the pure gas, but this percentage is not large enough to eradicate lividity and cyanosis, nor phonated sounds. Reflex and excitement movements are less marked but not entirely done away with. All these symptoms referred to can be prevented with the proper percentage of oxygen, and still produce tranquil anaesthesia.

The experiment showed that with 8, 9 and 10 per cent. of oxygen the alteration of the natural features were very slight, or, in other words, there was no lividity, and if we mix with nitrous oxide a percentage of air which will prevent this condition and other symptoms referred to, we shall in most cases also prevent deep anaesthesia. For example, to obtain 8 per cent. of oxygen, we will require a mixture of 40 per cent. of air; this would give us a combination of 60 per cent. of nitrous oxide, 8 per cent. of oxygen and 32 per cent. of nitrogen. The 8 per cent. of oxygen would be sufficient to preserve the natural color of the patient's face and prevent muscular spasm, but the 60 per cent. of nitrous oxide would be insufficient to produce tranquil anaesthesia. By employing oxygen for oxygenating purposes, we are able to replace the 32 per cent. of useless nitrogen, by a quantity of useful nitrous oxide, and the proportion will now be 92 per cent. of nitrous oxide and 8 per cent. of oxygen.

I feel safe in saying that there is no anaesthetic at present known which is so devoid of danger as that which results from this mixture.

DISCUSSION:

Dr. J. F. Stephan, Cleveland, cited a case where he had kept the patient under the influence of this combined anaesthetic for a period of one and a half hours. There seems to be less shock to the patient than with any of the other anaesthetics, and the anaesthesia is greater when the mixture is used.

The longer the anaesthesia is continued the greater the amount of oxygen the system can take.

Dr. G. H. Wilson, Cleveland, had noticed that patients were apt to get sick when the oxygen was given in connection with nitrous oxide.

Dr. J. S. Cassidy, Covington, Ky., said: I've been pleased with Dr. Ziegler's paper, and must say that I agree with him in all the points he has made, especially in the statement that free O is preferred to air, on account of the O of the latter being handicapped by the inert N with which it is mixed. Although it has been more than 20 years since I practiced the giving of N_2O for anaesthesia, I have in these years since then carefully investigated, more or less, the chemical nature of this gas, and in consequence I am more and more convinced of and confirmed in the truth of the statement that N_2O has no inherent power of itself, and that the remarkable energy it exhibits is coincident only with its own decomposition and concimitant setting free of nascent O; and further, that it is incapable of evolving any other results than those connected with oxidation products.

It is conceded by all authorities who have taken the trouble to study the question, that N_2O when inhaled passes through the arterial circulation unchanged, thus superseding the iron of that arterial blood, as a carrier of O; but when it reaches the capillaries, and there meets with oxidizable substances, its decomposition occurs, just as sure as 2 and 2 make 4, else our supposed knowledge of chemical fits and misfits founded on repeated experiments, is a delusion. One of our text books, edited, but not all written, by a gentleman who certainly knows better, says in its chapter devoted to N_2O, that "there is no separation of its elements at the temperature of the human body." This statement is unsupported by any evidence of fact. Why, gentlemen, if putrid water at 60° F. be allowed to absorb N_2O, it will become as sweet as any waters of the babbling brooks of early springtime, and this transformation is accomplished by the O constituent of the gas. A similar statement was made at Indianapolis last Tri-State meeting, but no reasons given for such a preposterous assertion. I earnestly invite any one to test the question, and if he succeeds in developing from N_2O any other result than that of oxidation, I promise him the unreserved admiration of the chemical world. 'Tis true, N_2O may be considered as the acid oxide of hyponitrous acid (HNO), but as such acid probably does not exist in fact, there is no proof involved either way on this point.

Then why give air or free O, with a substance so rich in O, and which gives it up so readily to oxidizable bodies? Are we not justified in replying that the free O (preferred to air because one volume of it is equal in controlling power to five volumes of air) prepares the iron of the arterial blood, superseded therein as it is, by the N_2O, to perform its normal function of assisting in the removal of CO_2 from the capillaries?

As early as 1867 I heard Dr. Watt, who by the way, when in his prime, set the pace for much that has followed in dentistry, say that by permitting the patient to inhale more or less air with the N_2O, the anaesthesia could be prolonged indefinitely and safely, with loss of consciousness to pain, but not to surrounding circumstances, and with but slight tendency to either asphyxia or cyanosis.

A NEW IMPRESSION MATERIAL.

BY DR. D. GENESE, BALTIMORE, MD.

The perfect material for taking impressions has long been recognized as *plaster*, but the difficulties of handling it by the operator, and the inconvenience to the patient, with the possibilities of an overflowing impression tray to cause nausea and a consequent soiling of the clothing of patients, operator and office furniture, has forced many impression materials upon the market. Some exceedingly good, others faulty; but all with the possibility of dragging a false impression being the result, because of considerable heat being necessary to soften the compound, and its liability to set hard at the thin or outer parts, while the deeper and inner ones are soft and liable to displacement.

I have a simple new process whereby the operator is enabled to handle it exactly like impression compound, with the exception that it hardens all over, same as ordinary plaster; does not spill, run or splash; it can be kneeded in the hand, and gives ample time for manipulation.

I have termed this new material "cementine," and models made with addition of a spoonful of it before stirring, take a smooth surface free from air bubbles; if compound is used for the impression it will leave the plaster clean and not liable to break or stick, and slowly dried either in air or warm chamber (not hot) will acquire a good hardness and leave the vulcanite clean.

There is no dropping from the tray, or causing nausea like plain plaster, and it can be mixed in laboratory and time enough given to carry to operating room; avoiding all discomfort so common with plaster to patient and operator.

Who amongst the users of plaster for taking impressions have not had trouble in putting the pieces together, and how often the dentist has trouble from a broken model, or tooth from same, or the displacement of teeth in packing flasks for vulcanizing, or the fracture of the parts in dividing the flasks?

Repair of these parts becomes a simple matter.

Put pieces of broken impression in place, mix cement with superfine plaster, very thin; apply to both edges sparingly and put into place, wiping the surplus off with a soft cloth or brush, and allow to dry for ten minutes.

It is useful, also, for repairing broken models, to prevent rubber pressing through between block teeth and in many other ways has made my laboratory work more satisfactory.

CHLORETONE, A PRESERVATIVE OF SOLUTIONS OF COCAINE.

DR. HOUGHTON, DETROIT, MICH.

Chloretone is a very satisfactory preservative of solutions of cocaine. Solutions of this kind have been kept for nearly a year and still remain sterile, notwithstanding the bottle has been frequently opened. They are permanent and always ready for use. Chlorotone and cocaine act together as local anaesthetics; that is, they produce local anaesthesia on the terminations of the sensory nerves when they are brought in contact with them by subcutaneous injection. As shown by experiments on the lower animals, less harmful results occur from the absorption of cocaine when considerable amounts of chloretone have been administered.

INTERNATIONAL DENTAL FEDERATION.

(Continued from page 83.)

INTERNATIONAL COMMISSION OF EDUCATION.

London, August 5, 1901.

The meeting was called to order at 5:15 p. m. by Dr. Godon, president of the International Dental Federation.

The following members answered the roll-call: Drs. Brophy, Bryan, Aguilar, Godon, Sauvez, Queudot, Viau, Roy, Harlan, Kirk, Forberg, Haderup, Zsigmondy, Frank, Baruch, Quartermann, Huet, Hesse, and Weiser.

Dr. Brophy opened the general discussion upon Dental Education.

The following report was then read by Dr. Zsigmondy:

Report on Dental Education (by Drs. Zsigmondy and Weiser):

In Austria, dentistry has always been considered as a part of surgery. In spite of the defects and errors of the law, and also notwithstanding the negligence of the government in its application, this law has always required that the dentist shall have completed his medical studies before being allowed to practice dental surgery. The physicians in Austria do not want this condition of things changed. Even bv making the greatest concession and fully acknowledging the modern progress, it cannot be admitted that dentistry is composed of two-thirds of manual training and one-third of surgical science. We see every day in our practice that this third is a very important factor in dentistry. We also see that it is not very difficult for a physician to become familiar with the technical two-thirds of this art, while on the contrary it is very difficult for the dental mechanic to acquire the said one-third of surgical science necessary for the treating of disease consecutive to disturbances of the teeth—that is, diseases of the gums, of the jaws, of the maxillary sinus, also to possess himself of the necessary knowledge required for the administration of general and local anesthesia. It is absolutely indispensable that a dentist should know the course to be followed in cases of this sort, for incertitude may have very disastrous effects. During the last ten years we find more than one antagonist to this opinion, on various grounds, and in support of their arguments against the study of medicine by the dentist, they claim that in order to become a good dentist manual training should be begun at the age of fourteen, or eighteen at the latest. This argument is contestable in itself, and also because the contrary is every day in evidence. It is contestable because every one who intends to follow the surgical profession must possess a certain degree of dexterity and manual training, and it is certain that this dexterity will be increased through anatomical studies, the making of microscopical preparations, the use of chemical and physical appliances, also by operations upon living and dead subjects. This refutes the fact that the number of Austrian *médecin-dentistes* capable of making their own prosthetic work is becoming more limited every day. It is also refuted by the scientific literature of ancient date, in which we find important works by Austro-Hungarian writers, just as at the present time our authors have acquired a reputation in this branch of dental literature. We see that in Austria reviews are published composed principally of papers by Austrian writers. This comparatively great development has taken place in spite of the fact that we have only three clinics or dental courses poorly endowed by the state (and this only very recently) and one supported by private funds.

By comparing this development with the erroneous position in which dentistry finds itself to-day in the countries where this part of medical science has not been or is not protected by appropriate laws and by good special schools, but on the contrary is open to any one, it can be easily seen that this result has been attained only by the fact that in Austria dentistry has always been in the hands of physicians who do not spare any time, work, or material sacrifice in order to improve their manual abilities, either by means of special studies or else by taking courses at foreign colleges.

The *médecin-dentistes* of Austria observe with satisfaction that their art has attained in their country the same degree of perfection as in the majority of the other states of Europe, and this notwithstanding the limited number of special clinics and their small endowments. By the new method of examinations of the medical school, which becomes legal in 1903, dentistry will be a compulsory study, and the government having promised the organization of new clinics and new courses in all our universities, this progress will take considerable proportions—in fact, the development of medical science will lead necessarily toward a complete reorganization of the study of medicine. It is inevitable that the students shall take up at first and during three or four years the study of the general and theoretical branches of this science, general and pathological anatomy, physics, chemistry, physiology, general pathology, microscopy, bacteriology, internal medicine, also a second course of about two years, which would be devoted to the special branches of medicine. Nevertheless, it should not be thought that because we are optimistic we are also blind to the defects of the method of examination of our schools of medicine, defects that cannot be denied, any more than can the errors of our legislature with regard to this subject—that is, that the degree of dentist is not absolutely connected with examinations and with sufficient proofs of special studies in this important branch of medical science. The corporations of *médecin-dentistes* of Austria-Hungary many years ago made fruitless efforts to bring about a change as to this, but the government has remained indifferent, because it does not attach enough importance to it, and also because it does not want to go into the expense of organizing new courses and new clinics; but if this effort has not yet succeeded, we hope that the official representatives newly created by the "Aerztkammer," and particularly by the "Organisation der Aerzte" will be more successful. At the present time they are working with the government to the end that doctors of general medicine who have given proofs of their aptitude by means of special studies and special examination shall alone have the right to practice dentistry. The dentists of Austria are persuaded that this is the only way of putting an end to the controversies between the *médecin-dentistes* and the technical dentist. They hope this, inasmuch as in Italy and other countries it is also desired that the dentists shall be doctors of medicine, and in Germany a congress of professors of dentistry has been organized in order to ask the government that the study of this part of medical science shall be accessible only to students that have passed their baccalaureate degree. This congress made a petition to the Council concerning changes in the examinations by which the studies and examinations in dentistry shall be made to resemble the studies and examinations in medicine. The Austrian dentists are of the opinion that it is their duty to defend and improve the system in vogue in their country, which looks upon dentistry as a specialty of medicine.

Dr. Haderup. We have just heard the exposition of two perfectly opposite principles. The Austrian representatives believe that dental education should have for its basis a complete medical education, while Dr. Brophy, of Chicago, on the contrary, asks that the future dentist should be first of all a practitioner and that he should receive his complete dental education in a dental school.

Before giving you my opinion on this capital question, I want to explain my position. I began the practice of dentistry twenty-four years ago; at that time I was a physician, and my opinion on dental education was similar to that of the Austrian representatives, but at the present time my opinion is different, and for thirteen years I have believed that complete dental education should be given in a special school. The experience that I have been able to gather in this direction has also confirmed my opinion that the dental students should only take up the medical studies necessary for their special calling, and that the theoretical and practical instruction should work side by side and should be given as far as possible in the dental school itself.

As far as the essential points of this problem are concerned I must say that I agree with Dr. Brophy's observations; however, he seems to me to have a tendency to consider all the branches of dental education as being of a purely practical nature, and to accord only a very small degree of importance to the theoretical subjects.

He is right if he refers to the sterile theories which are in no way connected with the teaching of the practical subjects, but my personal opinion is that the dentist cannot do without the scientific knowledge which forms the basis of practical education in all walks of life. In one word, dental education must be not only practical, but theoretico-practical.

Dr. Godon at this point resumed the chair and announced that the committee had made the following nominations: For president, Dr. Brophy; for vice-presidents, Drs. Zsigmondy, Kirk, and Paterson.

The meeting then proceeded to vote upon these names. The gentlemen whose names were proposed were elected to their respective offices.

London, August 6, 1901.

The meeting was called to order at 10:45 a. m. by President Brophy, the following members being present: Drs. Brophy, Aguilar, Bryan, Hesse, Zsigmondy, Weiser, Baruch, Frank, Huet, Quartermann, Queudot, Sauvez, Godon, Viau, and Roy.

Dr. Sauvez announced that the Executive Council had apointed Drs. Bryan, Haderup, and Zsigmondy members of the Commission of Education. He then explained Dr. Godon's motive in having at first resigned his office in the International Dental Federation, which was that the position vacated might be open to the other nationalities.

Dr. Brophy then announced that the next thing on the program was the continuation of the discussion upon dental education.

Dr. Aguilar said that he was very happy to see the organization of the International Commission of Education according to the resolution that he presented to the Congress last year. Replying to Dr. Brophy, he said that his opinions (Dr. Brophy's) could be applied to the United States and to countries where dental education is organized, but that in the countries where dental education has not as yet been organized they are not applicable, as in such a case nothing can be done without the help of the government, and hence the intervention of the university cannot be avoided. Dr. Aguilar said that the general education of the dentist should be similar to that of the physician, and hence the scientific and medical branches should be taught in the schools of medicine, which are the most competent ones for this purpose.

He asked that the commission should determine the subjects that dental education should comprise.

Dr. Hesse said that the question of how the subjects should be taught should not be taken into consideration, and that instead it should be decided what subjects should be included in the dental curriculum.

(*To be continued.*)

CURRENT ARTICLES.

[Condensed for The Dental Summary readers.]

THE USE OF THE SADDLE IN STATIONARY BRIDGE WORK.*

BY HART J. GOSLEE, D.D.S., CHICAGO, ILL.

The application and usefulness of a saddle, or *rest*, upon the tissue intermediate to the abutments, in the construction of sta-

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*From article in *Dental Review.*

tionary bridge work, is, in my opinion, frequently a *necessity;* but increases in usefulness in proportion to the accuracy of its adaptation, and in unhygienic qualities in the same inverse ratio. It has its limitations of usefulness, however, and is not only frequently unnecessary, but often entirely contraindicated.

In *porcelain* work, where the strength of the piece is more or less dependent upon the bulk or amount of this material used, the saddle affords the only *adequate* means of *supporting* the desired reproduction of lingual contour, and the necessary formation of the occlusal surfaces which are to be subjected to stress.

Its use is also indicated in *extension* bridges of either gold or porcelain, where one or more posterior teeth, which will be required to assume their portion of the work of mastication, are carried anterior or posterior to the abutment crowns.

While in these cases the abutment roots must possess sufficient strength in themselves to afford ample support to the dummies, and the occlusion, when possible, should be so constructed as to throw the greater amount of work upon the abutments, if this requirement is not observed, the displacement of the piece invariably eventuates.

Also, in typical bridge cases, where the opposing teeth throw the greatest amount of work upon the dummies, a rest upon the tissue beneath the area of greatest stress is often indicated.

And in cases where the occlusal surfaces of the opposing teeth are in close proximity to the tissue in the space to be bridged, a condition commonly called a close "bite," and where the dummies to be supplied must possess a masticating surface in order that such a bridge may be serviceable, the use of a well adapted saddle will result in a far more hygienic condition than the lingual *shelf* formed by the attachment of the cusps to the facings.

Whatever advantages a saddle may possess, however, there are conditions contraindicating its use quite equal in importance to those indicating it.

In bridges extending anterior to the second biscupid, supporting one dummy, a saddle is not necessary. Also in those cases where the abutment roots are close enough together to withstand the stress imposed upon the entire structure, and where the occlusion is favorable and opportunity is abundant for self-cleansing; where complete absorption has not taken place; and wherever and whenever every facility is or may not be employed to secure and sustain perfect adaptation.

As has been said, the success or failure of the saddle is in proportion to its perfect adaptation to the tissue upon which it rests. In size, it should be no larger than is necessary to the work to be assumed by the teeth it is intended to support, and should be made of platinum, because of the non-tarnishable quality possessed by this metal.

The following method is recommended for accuracy in obtaining adaptation and certainty in results: The abutment caps or crowns should first be completed and adjusted to position on the roots. An impression of them and the intermediate tissue should then be taken in plaster. If the crowns are withdrawn in the impression, they should be detached and laid aside. The open ends of the impression should then be filled in with mouldine or plaster. The die should be secured with any fusible alloy, and will present a reproduction of the abutment crowns in position, and their relation to the tissue upon which the saddle is to rest. This should be built up, as indicated, in order to form a matrix for the counter-die, in which it is only necessary to leave the surfaces of the crowns presenting toward each other, and the intermediate ridge exposed.

After dusting the surfaces with lycopodium, the counter-die may be easily secured of the same alloy. Thirty-two gauge platinum or platino-iridium, if stiffness is desired, should then be swaged and trimmed to the required form.

In broad, flat ridges, the saddle should be proportionately larger than in thin, sharp, narrow ones. The usual width varies from three- to five-sixteenths of an inch.

When the wider saddle is indicated, it is usually best to leave it full width, immediately beneath the dummies *only,* by cutting it away to some extent in the interproximal spaces, as originally suggested by Dr. W. H. Taggart. Such a shape affords opportunities for more self-cleansing interproximal spaces, and at the same time, sufficient support and lingual contour under each dummy. When properly swaged and trimmed, the crowns should be adjusted to the roots, and the saddle finally adapted in the mouth. Each end should be trimmed, so as to come in *direct contact* with the crowns *when pressure is applied*, and the edges should not be allowed to lap over upon them, as such a joint would destroy the assurance of accuracy of adaptation to the tissue at this vulnerable point. To absolutely preserve the true relationship between crowns and saddle, an impression in plaster of the parts, *with sufficient pressure* upon the saddle, is necessary. By utilizing a modification and more practical application of the suggestion offered by Dr. W. E. Griswold, such may be secured by the use of a piece of orange-wood of suitable length to keep the mouth open, with one end resting upon the center of the saddle, and the other against the opposing teeth or ridge. By firmly closing the jaw, the saddle is then gradually and gently forced into the tissue, when the impression can be taken *without* removing the prop, or relieving the pressure.

For this purpose, an ordinary partial impression tray (S. S. W., No. 30, 31) is used, with a *slot* cut into it from the *heel* sufficiently wide to accommodate or straddle the prop so that when filled with plaster it may be easily carried to place.

When the impression has been secured, it should be filled with investment material, which, after separating, will admit of the permanent attachment of the parts with solder. The piece should then be replaced in the mouth and finally adapted by burnishing, and the "bite" and final impression then secured, for the completion of the work. This same procedure is also equally as applicable to the construction of *removable* work, by any of the various methods, and admits of securing an adaptation which precludes any subsequent change of relation.

In mounting *fixed* bridges, however, when a saddle is used, gutta-percha is always indicated, because of the difficulty encountered in preventing the surplus cement from flowing in between the saddle and tissue, and its resultant irritating influence.

THE TAKING OF PARTIAL IMPRESSIONS SIMPLIFIED.*

DR. E. L. TOWNSEND, LOS ANGELES, CAL.

The taking of partial impressions has always been a bugbear to the dental profession, and any innovation that tends to make the operation more certain or accurate must be hailed with pleasure by both patient and operator. The invention here consists in lining the impression trays with sections having upturned edges which determine the line of fracture. This determining where the line of fracture is to be is the essential point. Heretofore it has been necessary to remove the tray, and then break the plaster and most always the break has been elsewhere than where desired, and a number of irregular pieces having anything but clean and defined edges to piece together is the result. As the impression is the foundation, it follows that an inaccurate impression means faulty work. This tray is simplicity itself. Could there be anything simpler than the breaking apart of plaster when the plaster is held at the edges of the fracture by a slight projection of metal? This metal giving the course and direction to the break. After being broken the plaster has a clean square edge that is easily put together and all the fine markings of both teeth and gums are retained, and if they are not obliterated by the parting fluid, will be a correct representation of the parts reproduced.

ORIGINAL METHOD OF ARTICULATING CROWNS.†

DR. C. E. WOODBURY, COUNCIL BLUFFS, IA.

The articulator used is an ordinary design. It is about four inches long and the upper arm, held by two screws, is removable, allowing a second one to be substituted, during the process. The band is first fitted to the root and taken off in the impression and placed in the articulator. After the opposing model is hard, the upper arm of the articulator is removed, an impression of it taken in moldine and a model formed of Melotte's metal. This is then adjusted to the second arm of the articulator. A cap for the crown is struck up from a die and placed on the band, then the articulator is closed very hard, thus forcing a perfect articulation. If the front screw be loosened a lateral movement is secured, leaving no use for a cusp being too high in a lateral movement of the jaws.

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*From report in Pacific Dental Gazette.

†From report in Dental Review.

FACIAL AND DENTAL HARMONY.*

L. W. BAKER, D.M.D., BOSTON, MASS.

While studying at school I had occasion to make an entire upper gold denture for a middle-aged woman. As you know, students are not always known to do the correct thing, so I made a mistake by getting the teeth too long, so much so that I was afraid that I would have to do the work over again; but I was instructed to try and shorten the teeth by grinding, so I went to work with a coarse stone and the engine. I was very much worried for fear I could not restore the even, graceful curves of the cutting edges of the teeth.

After taking off about one line I tried them in, and to my surprise they looked a great deal better than they did previous to grinding; in fact, they looked so well that I was afraid to even touch them with the stone. Now, a question that naturally came to my mind was, What had I done to cause such a marked change? You must remember that I had not attempted to get the cutting edges even, but simply to hack them off, so to speak, leaving them rough and uneven. It was that I had done in a short time what Nature is years in accomplishing—that is, wearing the teeth. It simply made the teeth harmonize with the age of the patient more than before.

After noticing this I took pains to examine natural teeth as well as those of casts, and to my surprise I found that in most cases of patients having reached the age of twenty years there was a wearing of the teeth more or less according to the age of the person. I would like every one of you to notice and see if this is not so. You might observe the different ways that I have ground these and the various effects that have been produced by so doing.

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*Extracts from article in International Dental Journal.

In grinding this set, I did something else to improve the appearance. The teeth were too light in color at the tips. Now, by grinding this off, it resulted in improving the color. making it harmonize also with the age of the patient. One great trouble with dentists is that they get the teeth too white to fit elderly patients, and it is just this class of people that we have to supply dentures for most often. I would like to impress the following points on every one of you here this evening: *That the teeth age with the patient both in wearing and in color, and it is by imitating nature in these two respects that the key-note of success, artstically, in artificial work is reached.*

As a person advances in life it is shown in various ways. We all know that the hair either comes out or turns gray. The skin becomes wrinkled. There is even a change in the color of the skin. Now, why do not the teeth show this aging? That is just what they do. To place white teeth in the mouth of an elderly woman would be the same as putting a wig on her made for a woman of twenty years of age. You can imagine how it would look—out of place and false; just the same as the teeth for a woman of twenty would look in her mouth. The reason why they would look false is because there is a lack of harmony between the age of the patient and the apparent age of the teeth.

We now come to another important consideration—namely, the festooning of the gum line, which plays a very important part in the general effect of the case. This must. of course, harmonize with the rest of the work. If the lines of the teeth are even and graceful, so must the gum line be. If it is for a rugged, strong man, the gum line must follow being rugged and strong, or the character of the case is lost. For a lazy, sluggish, lymphatic person the gum line wants to be low and flat.

Here is another place where the sameness of the teeth can be broken up as by grinding—that is, in varying the festoon. We can also age the teeth by making them somewhat, what we call, "necky," by making a recession of the gum that we so often see with advancing age. It is for this reason that the manufacturers have some moulds made with long necks.

We will now turn to the charts again, and I will endeavor to explain what I have been reading about the gum line. Take Fig. 1, which shows a well-balanced case. Notice that the festoons are even, graceful curves, and in harmony with the general lines of the teeth.

We now come to the gum itself. For a patient that does not show the gum in talking or laughing it is of little importance; but in those cases where the gum is shown, and it does not harmonize with the surrounding, the artificiality is at once discovered. In a case of this description the way to do would be to work the gum up carefully in wax and have block teeth carved by hand. In this way the correct arrangement of the teeth can be obtained as well as a natural-looking gum.

Possibly you have noticed the prominences over the roots, especially over the cuspids, showing the cuspid eminence, which gives so much character to the mouth and even to the corner of the nose. Now, if the plate line does not run high and the prominences are not sufficient, there will be a drooping at the angle of the nose. Then, again, a great deal of strength can be shown by making the prominences over the roots pronounced. For a strong and robust person the roots are strong and well developed.

PARALYSIS FOLLOWING EXTRACTION OF RIGHT THIRD LOWER MOLAR.*

DR. J. H. GIBBS.

The tooth was extracted for a lady last January, and in view of the result of the operation, the position of the tooth is of some interest. The tooth was standing vertically quite to the buccal side of the continuation backwards of the dental arch on that side. Moreover, the tooth was rotated on its vertical axis so that the mesial surface was facing the tongue, and that the two roots were internal and external instead of anterior and posterior; and the antero-external cusp of the third molar was wedged into a postero-external cavity in the second molar, the occlusal surface being only just through the gum.

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*From Dental Record.

The extraction (by means of the forceps) was not an easy one, and even when loosened, the tooth was only removed by allowing it to rise with a spiral motion.

Immediately after the extraction, the patient complained of her lip on that side, and upon examination the following state of affairs was revealed:—Tactile sensation was lost from the middle line of the chin backwards for two inches, the line of demarcation being sharply defined in front but not so behind. The area was also sharply defined at the lower border of the mandible. The inner side of the lip, gums, and teeth on that side were also more or less anaesthetic. Involvment of temperature sense could be detected definitely only in the skin, and corresponded to that of touch, but the area of complete paralysis was distinctly smaller than that of touch. Loss of painful sensation corresponded closely to that of touch and was very complete. Subjectively, patient's chief complaint was that the parts involved felt as though very much swollen, and that she could scarcely feel the teeth coming into contact on that side.

A NEW ROOT-FILLING MATERIAL.*

DR. J. LEVIN, MELBOURNE, AUSTRALIA.

Many suggestions have been offered as to the best methods of practice and materials for use in that most important, but very much abused, and often neglected, operation of filling narrow and tortuous root-canals, and especially the buccal roots of upper molars and the anterior canals of lower molars.

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*From Dental Cosmos.

During the past five months I have been experimenting with various materials in order to simplify, if possible, what often proves a rather tedious operation, and, after working on nearly every plastic substance that I could think of, found ordinary glazier's putty to be a most excellent preparation, and one which, in my hands has, during the limited time that I have been using it, proved itself to be superior to anything that I have ever used. It is free of most of the vices of the materials ordinarily used, while its virtues are: Its insolubility; it does not expand; its contraction it infinitesimal, and then only under heat; it is non-irritant and non-conductor; it will not absorb moisture; does not become too hard when hidden away from the air; is very easy of manipulation, allowing itself to be carried or forced into the most inaccessible cavities. while the oily nature of the substance prevents the absorption of any gases or moisture that may be present in the tubuli. The formula that I have been using is as follows:

℞—Whiting, oz. ½.
Aristol, grs. 12.
Ol. linum, q. s. to make the putty
of a doughy consistence.

The whiting and aristol should be thoroughly ground together and sieved before the oil is added, then add the oil, in small quantities only. The whole mass should be thoroughly kneaded between the fingers, and as it gets harder to work it should be pounded with a broad-faced hammer. The putty should be as thick as dough to be in its best state for use. Place the preparation in a wide-mouth glass-stoppered bottle, and always knead between the fingers before using.

As to the method of preparing roots, this has been discussed and written upon so often that what I could add would not be of any interest, therefore I merely say, prepare the root in the usual way and afterward carry small quantities of the material up the canal on the point of a worn-out Donaldson bristle; it is then condensed by using the bristle, with a few fibers of cotton twisted around, with a pumping motion, or by forcing in a small pellet of cotton which will drive the material before it.

ADRENALIN CHLORIDE.*

BY G. W. WATSON, L.D.S., EDIN.

This is a recent product from the Laboratory of Parke, Davis & Co. It was discovered by Dr. Takanime, who extracted from it the supra-renal gland, and is supposed to be the active principle thereof. It occurs in the shape of small fusiform crystals, and is a most powerful astringent, hemostatic and cardiac stimulant, and is used in the proportion of 1 in 1,000. The value of this preparation was first demonstrated to the writer some weeks ago, in a case where special precautions had to be used to prevent any loss of blood. The patient a young gentleman 17 years old, but who, being so much dwarfed, looked more like 12 years of age, than 17, required to have a post-nasal growth removed, and 12 diseased teeth extracted. The patient suffers from a bad form of valvular disease of the heart, and owing to the condition he was in, it was thought advisable to make the operation as bloodless as possible. Pieces of cotton wool, saturated with adrenalin were placed in each nostril to constringe the blood vessels, and also by absorption to stimulate the heart, then A. C. E. mixture was administered, followed by chloroform. The nasal growth was extirpated by means of the electric cautery, and with little or no loss of blood, after which, the teeth were removed, one by one, and each socket plugged with prepared pieces of cotton wool soaked in adrenalin. As the gum in the neighborhood of the lower front teeth up to the premolars on either side was very much hypertrophied and overlapped the teeth, it was poured down to the level of the necks of the teeth. It was perfectly wonderful the small amount of hemorrhage that ensued, and was quite controlled by the application of the adrenalin. This was most marked in the case of the hypertrophied gum, the bleeding from which, when cut, is usually very troublesome. This drug should prove of great use to the Dental Surgeon for many purposes which will suggest themselves, such as in the preparation of teeth for crowns, inflamed mucous membranes, etc.

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*From Dental Record.

TO HARDEN MODELS.*

DR. G. POST, HEIDELBERG.

One method is that of Julke: Take six parts of plaster of Paris and one part of freshly slacked lime. Mix these together and use as ordinary plaster. When the models are well dried, place in a ferrosulphate and zinc sulphate solution. Another method consists in immersing plaster models, which have been well dried, in an alum solution. The models to be immersed for half an hour. The solution should be made of one part iron-free alum and six parts water. Although much has been attained for the improvement of models by the above-mentioned methods, I believe that my own method is a decided advance upon those described. I use a mixture of plaster of Paris, chalk, and a glue solution. This combination is poured into the impression and allowed to harden. The glue to be used is not the common cabinet-maker's glue, but French hare or rabbit glue. Of this glue a three to five per cent. solution is made. After the preparation of the glue solution, a mixture of plaster and chalk is made in the proportion of three parts plaster and one part chalk. This mixture must be very exact. The plaster-chalk mixture must now be made with the glue solution into a stiff porridge. This porridge cannot be poured into an impression as if it were a simple plaster mixture; it is too viscous. A hair paint-brush must be used, and the material must be painted into the irregularities of the impression. By this means the impression can be filled. At least 12 hours are required for hardening before the model can be separated from the impression. Any form of impression material can be used. A model made in this way has at first almost the hardness of a plaster model, and after about eight days it is like hard wood to cut with a knife.

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*Extract from article in International.

THE NECESSITY FOR TRIMMING PROPERLY ALL METAL FILLINGS.*

DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

Of all the work which we are called upon to do, I know of none that so tries my patience as that of properly trimming the proximal surface of fillings. It does not make any difference how perfect all the work has been made up to this point; it is useless if that proximal surface is not perfectly trimmed. If we leave overhanging margins, yeast-ditches (Searl), little grooves and hollows in the filling or around it, then we are leaving opportunities for fermentation to undo our work. There is no other part of the operation that is so little understood by dentists generally. If I am to judge from the condition of the fillings which come to me from other practitioners, I am compelled to say that there are too many men who seem to believe that all that is necessary to do is to *fill* the teeth of their patients. It does seem that a little more attention should be given this subject. I am opposed to this habit of leaving so many fillings unfinished. A most serious condition of affairs confronts us, and it is one, too, that results in much more harm than many seem to suppose.

Regarding this matter of trimming fillings, let me say that there are other things besides disks and strips for trimming the proximal surfaces of fillings. I should like to call your attention to some of the other things. Here is a Black saw, some Black files and knives. These instruments are used for trimming the filling to form on the proximal surface. The saw is used for removing the surplus gold which lies along the gingival margin. I use it in this way: After the completion of the marginal condensation I loosen the saw from the frame and shove one end through the interproximal space. It is then replaced in the frame, and the nut on the end turned until the saw is rigid. The saw is then gently insinuated under the overhanging filling material, and, cutting towards the occlusal, the surplus is removed. I do not use the saw more than once. I make an attempt to remove about the gingival fifth of the surface. I do not continue the use of the saw until there is an opening into the interproximal space from the occlusal surface. These files follow the use of the saw, and the knives are used after the files. The filling material on the proximal surface is usually completely trimmed with these instruments. When the trimming is completed, strips and disks are used to remove the file-marks and to prepare the filling for the final polish. It is permissible to use rotary disks, provided that they are used to the lingual and to the buccal of the contact point. But if there is an adjoining tooth in position, they should never be passed into the interproximal space from the occlusal surface. If this is done, the contact point on the filling is removed, and another must be made if the filling is to leave our hands in the best condition possible. I have absolutely no patience with those writers on dental topics who assert that they can and do trim and finish all fillings made in the proximal surfaces of teeth by using the rotary disks alone. I have seen many fillings that have been made by some men who have made this assertion, and the less said about their fillings the better for us all. If we will but bear in mind that there are instruments for us to use when fillings are to be trimmed, and polishing strips for polishing fillings, and use them for the purpose for which they are intended, we shall very quickly observe how much more rapidly we can do our work. Nor is this all. The improvement in shaping our fillings will be so great that we may wonder why it was that we did not make use of these instruments at an earlier period.

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*Extract from article in International.

THE USES OF CORE-CASTING IN DENTAL THERAPEUTICS.*

BY OTTO E. INGLIS D.D.S., PHILADELPHIA.

So useful has the idea of casting with a core been in the domain of general mechanics, and in the casting of dies in the dental laboratory, that the principle has gradually crept into use for various purposes in operative dentistry, and incidentally in the application of therapeutics to certain pathological conditions. In the conditions in which this principle finds application it so simplifies their treatment that an enumeration of them is eminently worth while. The writer apologizes if, in bringing out his point he, to a certain extent, repeats what he has written in former articles.

In crown work the principle is useful in cases of roots so decayed internally that scarcely more than cementum remains at the gum margin; or it may be that even some cementum may be gone upon one side to such an extent as to annoy during the dressing of the canal.

To serve a double purpose the following procedure may be employed: The gum having been forced away with cottons, and the decalcified dentin removed, the canal is sterilized, and then well enlarged by means of drills or reamers, until a tapered dowel pin of fair size, and of a length to extend from the root, can be stepped into the upper end of the root-canal. The pin is coated with a film of wax, put in place, and about it quick-setting amalgam is to be packed. This is trimmed to shape and made level with the gum. After the amalgam has set moderate heat may be applied to the pin. The wax is melted, and the pin may be withdrawn. This leaves the root canal of a form convenient for antiseptic dressings, which may be placed in it to further sterilize its walls. The pin may be laid aside to be used later in the construction of a Richmond crown; or, if the canal conditions warrant it, may be left in position until the amalgam hardens.

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*Extracts from article in The Stomatologist.

In the treatment of some teeth the use of rubber dam is felt to be imperative, while at the same time the depredations of caries may have placed the cavity margin so far beneath the gum as to preclude its use. In such a case the cavity may be prepared and the retaining grooves made to extend to the cervical wall. Cotton, with the loose ends well rolled in, may be placed in the bulb of the pulp cavity and quick-setting amalgam solidly packed over this and into the cavity. When set, a spoon excavator is used to cut away nearly or quite all of the occlusal half of the filling. The cotton is to be exposed, when it may be carefully withdrawn. The first dressing should be cautiously applied to the canals, and should consist preferably of some diffusible antiseptic, such as formalin, or some digestive ferment. This may be covered with cotton and sandarach, or better, soft temporary stopping carefully applied.

All subsequent dressings or enlargements may be made under rubber dam, as a clamp may readily be applied to the tooth, being supported on one side by the tooth, on the other by the amalgam. When ready for permanent filling the amalgam already placed may be dovetailed and brightened, when fresh amalgam may be firmly attached to it by rubbing a little fresh amalgam upon the brightened surface. If desired the fresh amalgam may be packed into the dovetailed pulp cavity—a method which affords a very strong support to a filling—or a pin screw may be cemented into one root as a support. All this, however, is incidental to the chief point at issue, namely, the use of a core. If preferred, this may be of temporary stopping, but cotton is of great use in this connection.

The same principle is applicable to the placing and sealing of arsenical applications in cavities in which other methods prove more or less annoying. In general such cavities are found upon distal surfaces of upper and lower teeth, upon occlusal surfaces of upper teeth where broad cavities with only slightly retentive walls exist, and upon buccal surfaces of lower molars with the cervical margin beneath the gum. A pellet of cotton is placed over the pulp. Flagg's facing amalgam (S. 40, T. 55, Zn. 5, + Hg.) is then placed (in soft mix) over the cotton. The spoon excavator is used to perforate the amalgam to the cotton, which is then removed. This leaves the pulp exposed, and a neat opening in the amalgam leading to it. Through this is passed the arsenical application, and, if desired, a sedative application on a pellet of cotton; the whole is sealed in by means of a last portion of the amalgam tapped gently into place with a burnisher. This covering is as readily removed as temporary stopping, but may be counted upon for months of service if need be.

CONSTRUCTION OF PORCELAIN CROWNS.*

D. M. LE CRON, ST. LOUIS, MO.

The requirements for constructing a porcelain crown are similar to those for any style with a band, excepting that all roots must be cut shorter, thus giving as much space as possible for the porcelain, and to get the required strength in the finished crown.

Bands should be twenty-eight guage platinum. The floor to the band, which forms the cap, thirty guage platinum or preferably of thirty-two guage iridio-platinum, that the cap may possess sufficient strength to retain its shape.

In preparing the root, I proceed as follows:

Cut the root down to 1-32 of an inch above the gum margin, then with the enamel cleavers, clip off the sides of root, so that you get your walls parallel to receive the band. On the labial or buccall wall, cut away sufficient to get a thin veneer of porcelain to cover band and to conceal the platinum. When band is adjusted to root, remove same, and cut down root under the margin of gum; replace the band and with a sharp instrument outline the band upon root. Again remove the band, cut to marks indicated, and solder on the diaphragm or floor.

In the preparation of canals for the post, care should be taken to avoid enlarging them any more than is absolutely necessary. I find it well to use a bur or drill one guage less than the diameter of wire used for post. All posts should be of iridio-platinum in order to be rigid and unyielding, and range from 14 to 18 guage, according to size of root. They should extend into canal a distance equal to the length of the crown, and be passed through the diaphragm far enough to the lingual side so that the end may not interfere with the facing in its adjustment to the cap. The facing is ground and adjusted to the cap. The neck should be ground very thin, so as to overlap the cap sufficient to bring that portion in close contact with the gum, and to cover the band on the labial surface. Then solder to cap or post, and roughen the surface so the porcelain will adhere. All sharp angles and edges of the metal structure should be rounded off, the porcelain body fusing on it with less cracking and adapting itself more uniformly.

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*Extract from article in Dental Era.

The same general details apply in making bicuspids and molars, only it requires additional metal supports for the mass of porcelain to form the lingual cusps. This is done by simply soldering a vertical bar to the center of the lingual portion of the cap; having it extend about one-half way to the occlusal edge of facing. (I think there is no more inartistic work done on the natural teeth than crown work as it is commonly done at the present time. I also consider crown work one of the most important parts of porcelain work.) It can be applied to nearly every case where any other crown can, and to a number of cases where other crowns cannot. Any style of crown one chooses to make can be made by a dentist who bakes them himself.

In bridge-work care and judgment must be exercised, if constructed on mechanical principles in all its details, success will follow. You cannot throw it together in a "slip shod" manner and expect to be successful.

The preparation of abutements is the same as for individual crowns; but great care must be exercised to get them perfectly parallel with each other. I use a "parallel guage" that I invented some three years ago, and I am always sure that my piers are absolutely parallel; and never have any trouble in placing the bridge in position when it is finished. When the abutments are completed, put them in position; take a sharp impression with plaster and proceed to make your saddle. It should be constructed as narrow as possible and shaped as the natural teeth, also imbedded in the gums about the thickness of 32 guage plate.

This saddle is quite a mooted point in porcelain bridge-work, but the fact that porcelain facings on the ordinary gold bridges are frequently imbedded in the gum, in a hap-hazard way without any pathological conditions arising therefrom has led me to believe that the proper kind of a saddle accurately fitted, is much more comfortable to the patient than an open bridge, under which food is constantly collecting; and on the other hand will strengthen the bridge by making it a two beam bridge, which is certainly stronger than a single one. To get the beam or bar in position (which should be 14 guage iridio-platinum) first grind the facings, and wax in position; then take the impression of same, remove the wax from the teeth, place impression back in place on articulator, and proceed to get the bar in position under the pins of facings.

On an anterior bridge, I get the bar down and as close to facings as possible, so that the body can be carved with proper contour; also the required amount to cover bar.

The work must be very accurate. Always aim to get perfect joints in placing the bar and saddle in position, and solder with 25 % platinum solder. Numerous failures have been experienced by many dentists soldering with pure gold; even if the contact of platinum was perfect. The weight of the bridge causing a tendency to sag when under high heat weakens the joint, with the result that sooner or later, under the force of mastication, the bridge will go to pieces.

Thanks to Dr. Ames of Chicago, for the platinum solder that is on the market to-day. To his honor is due to a great extent our success in porcelain work.

When soldering with platinum solder, joints can be jumped to a certain extent, and any of the high fusing bodies can be baked on the frame work without sagging. To use the platinum solder, it is necessary to have a compound blow-pipe, in which the ordinary illuminating gas flame is combined with a current of nitrous-oxide gas, the combustion of the two gases forms a carbo-oxyhydrogen flame. Dr. Knapp's compound blow pipe is good in most cases if you have a sufficient pressure of illuminating gas.

THE DOUBLE PLATE SWAGING SYSTEM.*

BY J. MERCKENS, D.D.S., COLOGNE, GERMANY.

Looking at a gold-plate swaged between a zinc and a lead die, or under a powerful hydraulic press, we find the rugae and contour only imperfectly reproduced, this is due to the thickness of the swaged metal and the character of the dies. The results would be better if hardened steel dies could be utilized. By the double plate system we can easily produce plates which show all the details of the palatal surface of the mouth, similar to a vulcanite plate.

I proceed as follows: From a good impression a plaster model is made and all the remaining teeth are cut off within 1-25 inch from the gum; then mark the size of the plate, and scrape the model according to the soft or hard character of the palate. The middle hard ridge is relieved by a layer of plaster, or two thicknesses of tin foil.

I now proceed to make the dies for which a round steel flask, 6 inches high is used, consisting of two halves, with big pouring holes in each, and three oval cuttings inside. This flask has the advantage that the dies can be pushed out with little difficulty, and another pair can be poured in a few moments; besides, less of the die-metal is required.

As a die-metal I use only Spence-metal.† The *same* metal is used for the positive and the negative die. A second pair of dies are cast, the positive being Spence-metal and the negative Melotte's-metal. The model itself is cut quite low, and is painted with a mixture of oil and graphite; and imbedded in that half of the flask which has the guiding pins, and is supported by moistened sand, leaving only those parts exposed which are covered by the final plate. In the meantime the Spence-metal is melted in an iron ladle over a small Bunsen flame. I leave it cool until it sets near the edges, when it is stirred thoroughly with a wooden stick and poured over the model, (having placed the second half of the flask in position.) The Spence-metal should not overflow the pouring hole. After cooling, the model is removed, the die is cleansed and well oiled, replaced, and the second die is poured in the same manner. If the dies are found perfect, a second pair are now quickly cast, using Melotte's-metal for the negative and Spence-metal for the positive. This second pair of dies is used for the first swaging; the Spence die and counter-die for the final swaging.

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*Extract from article in Dental Era.

†Spence-metal is an alloy composed of sulphuretted iron, sulphuretted zinc, sulphuretted lead, and sulphur. It melts at about 230—330° F., has great tenacity, and expands very slightly on cooling, thus giving sharp castings with polished surfaces.—Ed.

As to the gold used, it is of importance to reduce it from 24 karat to 18 karat by adding half copper and half silver of the alloying weight. (Fletcher's dipping and melting crucible is a very handy appliance for melting small quantities of metal.) The gold is rolled out to about 33 to 36 gauge for partial cases; 34 to 36 B & S gauge for full plates; lower plates should be of the same thickness, viz: 33 B & S gauge; the plate covering the palatal surface should be a trifle thinner. I do not find it necessary to use a 20 karat plate, as recommended by Kniewel, it being too soft. I cut the gold after a tin pattern, inserting the same for the first time beween two pieces of moistened blotting paper or rubber dam; coax it to place with a wooden handle, using it as a burnisher (the Spence-metal is very hard and will not be easily marred) and exert slight pressure under a common press used for vulcanite work. Then I open the flask, cut the plate approximately, and straighten out wrinkles which are very apt to form with the thin metal. After annealing and cooling in alcohol, I press again; but without an intermediate layer of paper. Usually by this time the plate is perfectly adapted to the die, showing all its details. With the second plate I proceed in the same manner, but leave the first one in the negative half of the flask. This second plate is cut and trimmed to fit the model exactly; while the first plate is left just a trifle larger to allow space for adding the solder. Both plates are now reannealed, and together pressed once more, boiled in diluted sulphuric acid and polished with pumice on a soft brush wheel. Their inner surface is coated with borax and the plates are clamped together with iron-wire. Then I carefully place small pieces of an easy flowing solder upon the extended edge of the larger plate and dry the piece slowly over a Bunsen burner. As a support for soldering, a thick piece of asbestos paper is very handy; on this the plate is placed and a brush flame circulated all about it until the solder melts and flows between the two thin plates. As a test for perfect soldering, I now immerse the plate in alcohol, burning off the latter in the Bunsen flame. Any fizzing of the flame will indicate that there is a leak somewhere in the joint which should be looked after at once. Now the plate is filed, trimmed and swaged for the last time between the new pair of dies. If small wrinkles should appear, they are of no consequence, as they can be removed with file and stone.

The plate is now ready to be tried in the mouth, in order to ascertain where it might impinge upon the teeth and gums; and after a perfect adjustment, an impression is taken in the usual manner. Where the bite allows it, I use rubber attachments. Clasps, if necessary, and lugs for the rubber are now soldered to the plate. A full investment for such work requires a high degree of heat, thus increasing proportionally the danger of warping. To prevent this, I place the plate upon a piece of charcoal, lingual side up. Each heel is supported by a lump of plaster and a small quantity of it is dropped into the center, leaving all parts to be soldered freely exposed. Much heat, time, and labor is saved by this simple procedure. For rubber attachments I find small disks (similar to those used for pulp caps) stamped of dental alloy, very handy.* With a small particle of solder the disks are placed in position, and attached with a puff of the blow-pipe. If teeth are to be soldered to the plate, invest the piece in brick-dust and plaster, equal parts, intermingled with long fibered asbestos.

We now have a plate which, when finished, will surely satisfy both operator and patient, and which will give a fit like "a duck's foot in the mud." In doing this kind of work one of the principal features is to have an excellent quality of solder. It should be of good color, easy flowing, and not less than 16 to 17 karat fine.

The whole procedure seems to be rather elaborate, but it will turn out to be very easy and quick work after the first trial. Today, I would not think of fussing with moulding sand, pouring zinc and lead dies, etc., etc. In case I want to make a plate of single-thickness (as aluminum), I recommend the same dies aided by the strong center-press, made by Ash & Sons.

ANCHOR PLATES.†

BY PERCY T. DASHWOOD D.D.S., ATLANTA, GA.

I wish to call special attention to one branch of prosthetic dentistry which well deserves more attention at our hands, and the practice of which will not only add vastly to the comfort of our patients, but will redound to our own advantage. Anchor plates combine the principles of crown work with those of plate work, and, as the term indicates, are plates anchored to one or more natural roots in the mouth. Their advantages are many; their disadvantages are practically none. They favor perfect hygienic conditions, are firmly anchored in the mouth, and consequently can perform more work and cover less of the mucous membrane than with the ordinary plate. The conditions in which their use is indicated are so numerous and varied that a few instances alone must suffice.

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*Dental-alloy is a metal base for dentures of a high fusing point, consisting approximately of platinum 1 part and silver 2 to 3 parts.—Ed.

†Extract from article in Dental Headlight.

A very common condition which often presents itself is to replace the missing posterior teeth, both upper and lower, and to do this I make telescope crowns for the last tooth posteriorly on each side, cemeting the under crowns on the natural teeth and attaching the top crowns to the plate constructed in the ordinary way. The telescope crowns, fitting tightly, hold the plate rigidly in position, but the plate derives its support from close contact with the mucous membrane. A sound cuspid in the upper jaw has been invaluable to an elderly patient with a very flat palatal process, by using telescope crowns and soldering the top crown to a gold plate, the remaining teeth being attached with vulcanite. Without the cuspid attachment, it would be impossible for the plate to be as firmly anchored in the mouth. A difficult condition to deal with is where the posterior teeth on one side only have been lost, and here I would suggest telescope crowns for the last tooth on that side and a gold plate extended as far as the cuspid on the opposite side, allowing the end of the plate to fit close between that tooth and the biscuspid, and attaching the missing teeth with vulcanite. A molar on each side of the mouth with the intervening teeth lost, offers another admirable condition for the insertion of an anchor plate. In constructing these dentures, the greatest care is required; a little carelessness may lead to utter failure. Note carefully the condition of the mouth, the hard and soft tissues, and the probable amount the plate will settle in these tissues. Trim to a cone shape the roots to be crowned, so that the sides of the crowns to be cemented on are not contoured, but flush; have a flat, occlusal surface, allowing for a solid cusp on the top crown. Then make the top crown to fit tightly over the under one, and have the band of thick, stiff gold re-enforced with solder when adding the attachments for the vulcanite, or when soldering to the gold base, as the case may be. Cement the lower crowns on the natural teeth, and when the cement is thoroughly set adjust the top crowns with a thin piece of metal between them and the occlusal surface of the lower crowns to prevent undue bearing of the appliance upon these roots and to allow it to settle to the mouth. If the plate is to be of vulcanite, take a wax bite with the top crowns in position and lay aside. Then take a plaster impression, removing the top crowns in the impression. Treat the impression in the ordinary way with the shell-lac and the sandarach varnishes, and take a wire nail and bend each end at right angles so that they will enter the crowns in the impression. Then run a hard model in plaster, and the wire nail will hold the crowns firmly in place both during the separating of the model and during the various stages following. Supposing the plate to be of gold, after adjusting the top crowns and the swaged plate, remove them in a plaster impression, use the nail, run the model in an investment material, and solder the crowns to the gold base. Replace in the mouth, take the bite, and attach the teeth with vulcanite.

As anchorage for these plates I have mentioned only the telescope crowns, but frequently the conditions indicate the use of porcelain crowns with pins in the roots. In such cases I use a metal tube sealed at the apical end and soldered to a cap fitting over the root and cemented in place. The porcelain crown attached to the plate has an iridio-platinum pin which fits into the tube and which can be split and spread if it is found necessary to form a firmer attachment for the plate.

Many of you no doubt are making these dentures, but I am persuaded that we should insert fifty where we now construct one.

USE OF PINLESS VULCANITE TEETH IN CONSTRUCTION OF BRIDGE-WORK FOR BICUSPIDS AND MOLARS.*

DR. L. F DAVIS, WASHINGTON, D. C.

The same abutments may be used as for other bridgework. Select pinless vulcanite teeth (preferably Ash's) for the case. Teeth must be selected which will allow, with as little grinding as possible, sufficient space between the base of tooth and the ridge for the thickness of twenty-six guage gold plate and space for cleansing purposes.

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*From article in Items of Interest.

The teeth are arranged between the abutments and articulated with the opposing teeth by grinding from under surface of tooth as far as practical. The teeth are removed from model and their circumference taken with a dentimeter at the lower third of tooth. That part of the band which encircles the face of the tooth, may be beveled slightly so as to expose as little gold as possible. The band is trimmed flush with the base of the tooth, and a piece of twenty karat twenty-six gauge gold plate soldered to the band, which now forms the bottom, to a perfectly fitted box.

The teeth, with boxes on them, are placed on the model, properly arranged and the boxes attached to each other and to the abutments with sticky wax. The teeth are removed, leaving the boxes in position on the model. This is invested, leaving only the inner and under surfaces of boxes exposed. The wax is removed, and the V-shaped spaces between the boxes and abutments filled in with eighteen karat solder, connecting boxes and abutments. The bridge is removed from the investment and finished. The teeth are set in the boxes with oxyphosphate of zinc or sulphur cement.

This method can also be used for an abutment on bicuspid teeth and for a single crown. The root is prepared similar to the preparation for a Richmond crown. A cap is made for the root, pin fitted and soldered to the cap, impression taken and model made. The tooth is selected and articulated the same as suspended teeth. A band fitted to lower third of tooth and filed to fit the cap. The tooth is removed and the band soldered to the cap, the top of the cap forming the bottom of the box. The tooth is set with cement or sulphur and the crown finished.

The claims of this method are that we have all the advantages of a porcelain bridge, in that we have no display of gold, without the disadvantages in case of breakage. By this method a broken tooth can be replaced by selecting a tooth to correspond with the one broken and cementing it in the box without removing the bridge from the mouth, which is necessary to repair a porcelain bridge.

The teeth do not pass through the fire, thus running no chance of checking. By articulating the teeth, by grinding the teeth from the under surface, the natural appearance of the cusps is preserved. Hygienically, it is as near perfect as is possible. Altogether it produces a simple, strong and artistic bridge without the inherent faults of other methods.

GUAIACOL.*

BY CHAS. P. HOLLAND, D.D.S.

Guaiacol is one of the constituents of creosote. It is a colorless liquid with an aromatic odor; soluble in alcohol and slightly so in water. I have used guaiacol for two years, and find it one of the best sedatives I have ever employed. In any case of pulpitis it will stop the pain in from one to three minutes.

I have in mind a case of a young man who came to my office suffering intense pain from an inferior first bicuspid. He wanted me to extract the tooth, but I told him I could save it. He replied, "All right, do what you wish, but hurry and stop this pain." I applied the rubber dam, excavated the cavity, and applied guaiacol on spunk to the exposed pulp. The result was magical; in one minute the pain had diminished, and in three minutes had entirely ceased. I allowed the spunk to remain in the cavity, flowed thin cement over it, and dismissed the patient, with instructions to return in twenty-four hours. At his next visit I applied arsenic to devitalize.

I use guaiacol in connection with arsenic and cocain for devitalizing, adding enough guaiacol to make a paste, applying on cotton or spunk to the exposure; then flow thin cement over the dressing. I have made about one hundred and fifty applications, and without complaint from my patients as to the tooth aching after the application.

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*From article in Items of Interest.

I used guaiacol in capping pulps when from some accident the pulp has been exposed. I first apply the rubber dam, wipe out the cavity with a solution of bichlorid of mercury about 1 to 200; then dry the cavity. I then make a concavo-convex cap of gold just large enough to cover the exposure; then take some cement powder and add enough guaiacol to make a paste, fill the gold cap with paste, and apply over the exposure, carefully removing the excess paste from the edge of cap. I then flow thin cement in the cavity and allow this to remain for six months, when, if the tooth has not given trouble, I cut out part of the cement and add gold or amalgam, as the case demands. I have capped a great many pulps, and have had good success.

In children's teeth guaiacol is an ideal remedy to use when the little ones come suffering with toothache and you do not like to risk the use of arsenic. I take a little cement powder and add enough guaiacol to make a paste, apply over exposure, and then flow over this thin cement. I have treated a great many deciduous teeth in this way, and have never heard the little ones complain about the tooth causing pain. As before remarked, guaiacol is one of the greatest sedatives I have ever used, and I am sure that every dentist will agree with me who will give it a fair trial.

GOOD RESULTS OBTAINED BY THE EXTRACTION OF FIRST PERMANENT MOLARS OR OTHER PERMANENT TEETH.*

BY W. D. TENISON, D.D.S., NEW YORK.

I wish to state that I do not take a radical stand and hold that first permanent molars should always be extracted, as the other side claim they should never be,—or, in fact, any permanent teeth. In all conditions I refer only to extraction in child life.

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*Extract from Dental Cosmos.

I have found during a practice of forty years that we cannot follow any ironclad rule in the treatment of the organs we are called upon to care for, and our honest effort should be to do the best we can in our judgment for the future comfort, health, and welfare of our patients, so that when we are about to close our earthly career we can feel that, without regard to monetary considerations, we have done the best we could. I have yet to feel that I have done an injury to a patient where in my judgment it became necessary to extract, and I will say now that I have practiced it in very many cases, always taking into consideration the age and conditions found on examination.

Let us now look at the condition we often find and see what is our duty. Children ranging from nine to twelve years of age are brought to us suffering from toothache, and a request is made to examine and see what is the cause, which we often find to be from a deciduous tooth, but more frequently from decayed first permanent molars with exposed pulps. When we so state a response comes, "Oh, no; that cannot be, as the child never lost teeth where they are." This condition we see almost every day in consequence of the neglect of child or parent to take care of the teeth, presuming they are temporary ones; but all at once they awake to the fact of the consequences of such neglect. We are then asked what is best to do. That is the question to settle; extract, or retain such teeth in the jaws. Let us look for a moment at the conditions that may exist; exposed pulps, teeth of poor quality, and all showing a tendency to decay; or the teeth may be in a crowded condition. If such conditions existed, and the child is at an age when the second molars are about to erupt, I would extract all four first permanent molars, even though all are not decayed, unless there is some very good reason for not doing so, such as one jaw being unduly developed as compared with the other.

A few years later, after such treatment, we find as near as possible a perfectly regular set of teeth, good articulation, few or no decays, not a dead tooth in either jaw, perfect comfort to the patients, who are able to masticate their food perfectly and, so far as the teeth are concerned, are in perfect health, with no flattening or contractions of the arch, no straightening of the lines or shortening of the teeth, as has been claimed by those who denounce extractions.

Let us follow out the theory of non-extractions under similar conditions. First, treatment of exposed pulps and consequent death. No matter what the treatment may be, you will have dead pulps to contend with sooner or later, and who can say what the outcome may be from a devitalized tooth. I have seen many cases where they were comfortable and useful teeth for years, but you cannot count on them. They are a constant source of danger, and very often have to be extracted at an age when gaps are left, and tipping of the remaining second molars occurs. We see any number of such cases with great discomfort to patients, leaving them unable to properly masticate their food, consequently bad digestion and bad health.

We will suppose a case where the first permanent molars and other permanent teeth are in good condition, but decidedly crowded, pressing against each other, throwing them out of their normal position, preventing a proper development of the enamel at the points of contact and proper cleansing of the teeth. Those opposed to extraction will suggest the spreading of the arch, thereby easing off the pressure and separating the points of contact. This can be done, but let us consider what that entails.

First, to most of us our fees are of some consideration for the vast amount of work to be done, and very few are able or willing to pay a dentist what such services are worth. Even if they are willing to do so, very few children will submit to the torture of such an operation; some are so nervously and delicately constituted that it would endanger their general health, maybe permanently. I have done it in few cases.

Second, the wearing of plates or other appliances is liable to injure the whole set by constant pressure and retention of food, etc., as I have often seen.

Retaining plates have to be worn sometimes for a year or more after the regulation is completed, and are a constant source of danger to the soft young teeth by retention of food, etc. It is almost impossible to get a child to be careful in keeping the teeth properly clean to avoid the danger of decay. If we can avoid all this by the simple extraction of the first permanent molars, or even other permanent teeth, why not do so?

In discussing this subject from a monetary consideration, I must confess the fees are small, if any; but, as I have already said, it is our duty to do the best we can for our patients who place confidence in us, and I think any honest-minded dentist will do that without taking into consideration the question of fees, even though we may differ in our mode of practice.

ARSENOL AND ITS APPLICATION.*

BY DR. ERNEST P. DAMERON, ST. LOUIS, MO.

In the February *Items of Interest* I note an article by Dr. C. E. Sommers on arsenol which greatly interested me, as I have used this preparation for the last six months with the most gratifying results. The cases as presented by Dr. Sommers are typical, and conform in every respect with my own observations.

Success with arsenol, or, in fact any other arsenical preparation, is based on scientific principles which should be closely observed. Whenever we apply arsenious acid within the tooth cavity for the purpose of devitalizing the pulp, we depend, in our success with the preparation, directly upon absorption, a property manifested by every living tissue. Our aim, when applying arsenious acid, should therefore be to preserve, or rather maintain, the property of absorption of the drug by the pulp. I mention this because it is common practice to apply carbolic acid or some other coagulant of albumin (escharotic) not only when preparing a cavity for the application of arsenious acid, but also directly to the pulp in order to reduce the pain. Such practice is immediately followed by a total destruction of the living tissue to a depth limited only by the extent of action of the drug applied. As all escharotics are coagulants of albumin it necessarily follows that an insoluble sheet of albumin lies between the living pulp tissue and the arsenical preparation subsequently applied. Then we wonder why the pulp successfully resists five or six applications of arsenious acid.

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*Items of Interest.

The method which I have pursued in preparing a sensitive cavity for the application of arsenious acid has always been, after having at first applied the rubber dam, to apply any of the numerous non-coagulant anodynes on hand, such as cocaine, oil of cloves, etc., before proceeding to excavate a sensitive tooth-cavity. By above procedure we are enabled not only to properly prepare a sensitive tooth-cavity for the application of arsenious acid, but also to maintain in the pulp the property of readily absorbing the drug applied.

In conclusion, I will state that in arsenol, as manufactured, we have an arsenious acid in a state ready for immediate absorption by the living tissue. The immense advantages of arsenol over any other arsenical preparation lies, as confirmed by many fellow-practitioners with whom I have spoken on this particular point, not only in its quick and decisive action, but also in the painless manner in which the dreaded operation is accomplished.

AN INTERESTING CASE.*

BY W. H. ARNOLD, D.D.S., FRANKLIN, KY.

On January 15 of the present year, a lady presented herself, seemingly in great distress, and not very sanguine over the diagnosis of prominent physicians and dental surgeons in regard to an edentulous inferior maxilla with which she was suffering very intensely. She was wearing a lower denture, the teeth having been extracted years before.

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*Items of Interest.

My associate, Dr. S. J. Martin, was first to examine the jaw, and was told that at two different times professional brethren in a neighboring city had gone into the bone in the locality with engine burs and drills, attempting to remove what they had pronounced to be either dead bone tissue, or some sort of tumor.

The soft tissue over the affected spot did not seem very sensitive, the only external and visible signs of any trouble being the cicatrix of a former operator's knife.

Dr. Martin at once pronounced it a piece of tooth that was causing the trouble, and insisted that he could remove it easily. The lady somewhat reluctantly allowed him to proceed, and after thoroughly obtunding the overlying gum tissue, he used the lancet freely; then using a root forcep loosened the apical third of a second bicuspid, and with the aid of an elevator it was removed.

It is needless to add that the good lady was very profuse in her praise of the man who had relieved her both physically and mentally, and went her way rejoicing.

INFLAMMATORY DISTURBANCES DUE TO THE PRESENCE OF A FOREIGN BODY IN WHARTON'S DUCT.*

BY DR. F. J. MARTINEZ AGUIRRE.

In 1898 a patient was referred to me by one of the practicing dentists of this city with regard to a disease the cause of which he could not ascertain. The patient, a young girl of eighteen years, had been complaining for a long time of acute pain in the region of the submaxillary gland. The pain increased during mastication, and gradually became so severe that it prevented her from eating.

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*Extract from Dental Cosmos.

The submaxillary region was very much tumefied, and the skin over the gland presented a deep red coloration. As the teeth were in a perfectly healthy condition, we were somewhat in the dark as to the cause of the disurbance. The floor of the mouth was the seat of acute inflammation; the submaxillary gland was very much swollen; the mucous membrane presented a deep red coloration, and the papilla of Wharton's duct projected about half an inch beyond the level of the surrounding tissues.

While examining the floor of the mouth, I made slight pressure upon the tissues covering the duct, when I observed that a whitish fluid was exuding through the opening of the duct. I made more pressure, and, to my great surprise, I saw that not only more fluid, but also a pointed body was coming out through the opening of the gland. I then proceeded to extract the pointed body; this I accomplished by means of an ordinary pair of pliers.

The body thus extracted was a fragment of a toothpick, which the patient had introduced accidentally and unconsciously into the duct of the sublingual gland. I questioned her many times to ascertain how and when this strange accident had taken place, but unfortunately, she could not enlighten me on the matter, as she had no recollection whatever of its occurrence.

The illustration accompanying this report showed very accurately the piece of toothpick with the calcareous deposits which had accumulated upon it during its stay in the duct.

After the removal of the cause, and after the patient had used an antiseptic mouth-wash for a few days, the inflammation and pain subsided, and since that time she has not had any further cause for complaint.

SOME PHASES OF PROSTHETIC DENTISTRY.*

BY I. C. CURTIS, FULTON, N. Y.

There is a growing tendency upon the part of the better class of dentists to disparage mechanical dentistry, and to look down upon the one who devotes a part of his time to it. It is not an uncommon thing to hear dentists say, "I never extract a tooth or make a plate; in fact, have not done any mechanical work for years." To such men my remarks will probably not be of interest. I would, however, say to them that if the same grade of talent were to be applied to prosthetic that is to-day given to operative dentistry there would not be so many glaring exhibitions of artificial dentures. Then, too, there is another side to the question. You of mature years, and whose hair is sprinkled with gray, must confess that you have patients of whose organs of mastication you have had the care for years, and after carrying them through the various stages of fillings and crowning and bridging, disease or age at length forces you to say, "There is nothing left but to resort to an artificial denture." I ask you, Is it fair to your patient, after he has been faithful to you through all these years, to at last turn him off like some animal that has outgrown its years of usefulness and oblige him to accept of the services of some one whom you have looked upon as your inferior in the profession? It is your privilege to decline to increase your *clientèle,* but it is your duty to continue to furnish the same skill in producing artificial substitutes to take the place of the organs of mastication your patients have lost through your inability to save.

That too many artificial teeth are worn no one will dispute, but that many must be worn is just as true. The selecting for size, shape, color, bite, and arrangement must be governed by age and temperament, as well as nationality; and each case must be a study of itself, and I would lay emphasis on the word "study." Josh Billings once said,

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*From article in Dental Cosmos.

"Everybody thinks he knows how to run an hotel, and that accounts for the number of poor ones." Perhaps that may apply to making an artificial set of teeth. There are some things that are prerequisite to make of success, three of which are a perfect impression, cast, and bite. In many people the roof of the mouth is so sensitive to the touch that nausea is sure to occur in taking an impression. In such cases paint over the posterior arch with a ten per cent. solution of cocain, and, after waiting two or three minutes, you will be surprised at the result. For taking an impression, I use nothing but plaster, for the reason that it will not bend; and if it breaks the pieces can be readily replaced and fastened with hot wax. In taking an impression, first see that the tray is of suitable size, and do not fill it nearly full of plaster, but place it around the rim and front half of the middle part. Take your spatula and spread a quantity over the roof of the mouth, working it to place with the finger, and the same amount placed on the outside of each maxillary tuberosity; then if the tray is carried to place the plaster will not be forced on the soft palate. In case that such should occur, a quick stroke of the finger will remove it and bring it out of the mouth. Press the lips and cheeks to force the plaster into contact on the outside of the ridge, and you have eliminated some of the chances of an imperfect impression.

Having obtained a satisfactory impression, the next step is to obtain a smooth and perfect cast. A solution of anilin in alcohol is painted on the impression; when dry, paint over with liquid silex two parts and water one part. This will give a smooth, glassy surface, to which the plaster will not adhere. Use no oil or anything else after the silex is painted on.

In separating the cast from the impression, the anilin will give you a line to work to. After the cast is separated a line is made with a pencil to mark the surface you wish to cover with your plate; and here let me add that I have the best results where I make the line as deep as the thickness of a common pin, and deeper at the posterior part on each side of the median line, to make the plate imbed itself in the soft palate, but not in the median line, for at that place the two halves of the palate process unite and form a ridge not so deeply covered with flesh. Coat the cast with silex and water, and when dry you are ready for the bite.

There is probably no part of the operation that has more uncertainty connected with it than the simple act of what is termed "taking the bite," and I doubt there being one here (provided he does mechanical dentistry) but that has often found the patient did not close the jaws together properly and the bite was imperfect. Various plans have been advocated, and all have their good points, but the fact that we continue to see imperfect occlusion in artificial dentures forces us to think that others fail as well as ourselves. In taking the bite, chill the wax on the rim and try in the mouth cutting the wax down until the antagonizing teeth all touch, and the mouth, when the lips are closed, assumes a natural appearance. Remove and place a layer of softened wax on the hard rim, and when the teeth are closed upon it they cannot penetrate into the hard part, and you have maintained the desired distance apart.

The plan I have found most satisfactory is based on the principle that the jaw cannot be carried too far back, save in very rare cases. Such exceptions occur in very old and very much relaxed ligaments. To force the jaw back as far as possible, place the bite in the mouth, the head being firmly placed in the head-rest, and ask the patient to open the mouth to the extreme limit, which will bring the condyles to the extreme edge of the glenoid fossa. Grasping the chin firmly with the hand to prevent the closing of the mouth, ask the patient at the same time to close the mouth, and, after two or three efforts have been made by the patient, finally alow it to close, which it will do with a snap, and the condyles will have taken the position which nature assumes when the teeth are in a normal position.

With a perfect impression, cast, and bite, and an ideal gained from studying the particular case, there can be no excuse for the malfitting, maloccluding caricatures justly termed *false teeth.* I have for inspection an impression and a cast, which I will pass around. Every one thinks he knows how to take an impression, and perhaps he does, but a good one may be ruined by its after-treatment. If you use varnish, then the oil you use to prevent sticking produces a condition of affairs on the cast called flouring, and the less you have of that the better.

In the specimens I show you the impression is first colored by coating it with a solution of anilin in alcohol, and when dry adding a coat of dilute silex, water one-third, liquid silex two-thirds; when this is dry pour the plaster on the silexed impression, and you are pouring it on a surface almost as smooth as glass and that has no substance that will act in any manner upon the plaster. The anilin will give you a line to cut to in the separation, and the coat of silex on the cast will give you a surface that the rubber will not adhere to in vulcanizing; it also gives a good, hard surface to the cast while working with it. A foot bicycle pump will facilitate matters very much in the drying of the anilin and silex coats.

TRIANGULAR BAR BRIDGE.*

BY C. C. HARRIS, BALTIMORE, MD.

The question of cleanliness has always been a disturbing element in the construction of bridges, and I have felt that the simple bar bridge is the ideal one. While the impossibility of decomposing food particles collecting under the bridge is of the greatest importance for the wearer's comfort and for maintaining the sweetness of the breath, it is no less essential that the cervical margins of the abutments shall be absolutely free. No part of the bridge should extend as low as the gum at the anchoring crowns.

The gum at this point of contact naturally forms something of a pocket for food particles and calcareous deposits.

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*From Dental Cosmos.

This is frequently observed at surfaces adjoining the space where one or more teeth have been extracted. Deposits of food and calculus at these surfaces keep the gum and bone inflamed and receding or separating until the very apex is reached, and in case of molars this nearest root loses its entire connection, while the other root is healthy and firm in its attachment.

The question arises: How are we to help matters,—to construct bridges in such a manner as to make is possible to keep the "space" surfaces clean and healthy? I think the bar bridge ideal, and yet there are serious objections. Of course I am assuming that such are suitable only where porcelain facings are not necessary for appearance.

The one serious objection to the simple bar is greater in the lower than the upper mouth. The objection is that in the management of the bolus of food with the tongue it is often forced under the bar and through the space, thus giving the wearer no little annoyance in eating.

This inconvenience and annoyance had to be overcome, and I hit upon the plan of making this bar a triangle, with the base for the grinding surface and the apex extending quite to the gum, leaving very little if any space between this narrow line of gold and the gum. You will see there is no undercut from either the outer or inner side for food to lodge, and the patient at least will have one-half the advantage of cleaning from the outside.

Now I mean in future to incline the apex of the triangle more to the inner or lingual side, thus enabling the patient to have the under jutting surface "entirely buccal," where it can be readily reached with the brush and cleansing agents. No bridge can be constructed in so little time, and this is an important item of consideration. The easiest and quickest method of getting the articulation is to burnish a piece of pure gold to the surface of opposing teeth, which is always accurate and reliable, and then fold the outer and inner sides down and in, thus making the apex at the gum. I leave a small cleansing space at each anchorage.

This bridge is especially adapted to inferior cases, because of not being conspicuous, like the upper, making facings unnecessary. In the normal mouth, the lower buccal cusps articulate to the center and inside of the buccal cusps of the superior teeth, making it common to see the facings of lower bridges broken. My experience with these bridges has been entirely satisfactory.

LEAD OUR LITTLE PATIENTS.*

BY C. L. THOMAS, D.D.S.

We must handle our little patients in such a way that we can do anything in reason with them, and when dismissed they will depart with a happy face, proving to us that a victory has been gained.

I say spend a few moments with them and make their acquaintance—strike up a conversation—and work your way into their good graces. It may first be necessary to learn from the parents something the child is particularly fond of, or some of the playthings they have, then engage them in conversation about them. These are the things the child knows most about, and as a rule it will enter into conversation without any hesitation, and you will have gained your point, then you can gradually change your conversation, get your patient into the chair and do the necessary work.

All children are not alike, therefore it requires a great deal of tact and study to know how to deal with the different dispositions. Not long since a little fellow of five years was brought into my office in a very much frightened condition. He came with tears in his eyes. Why? Because of something I had done, or was to do? No. Not many days before he had entered the office of another dentist and was treated in a very unfair way. The dentist hustled him into the chair (it being his first experience, he did as he was told) and told him he was not going to hurt him. "I will take out that tooth without any pain." Everything being new to the little fellow, he had confidence in the dentist and believed what he said was true. Of course the pain made the child cry; but the untruthfulness of the operator caused the harm. It took some fifteen minutes to gain the little fellow's confidence. I tried several methods, but thought I would have to give up in despair. In questioning the parent I found that the child loved machinery and through this medium I touched the little fellow's heart, and he at once began to talk—but I could not get him to willingly go to the chair—so I took him in my arms and lifted him into it; this made him cry, but by being firm and yet kind, he soon quieted down and sat there like a little major while I did the necessary work. When I had finished and lifted him out of the chair his face was wreathed in smiles. He ran into the reception room, where his mamma was, and said, "Mamma, I like that man—that other man lied to me." He had not forgotten his former experience.

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*Extract from article in Pacific Dental Gazette.

My experience with children has taught me never to deceive them—and if I am going to cause them pain I tell them so—and that they must bear it just a moment. When he left I asked him if he would return if his teeth troubled him any more. He said he would and darted out of sight. We cannot talk to children as we do the youth or adult. When the little ones are brought to our office we should not approach them in a stern, unbending way, as I have known dentists to do. Remember we are dealing with children, be gentle and kind, do all in our power to make them feel at home and that we are not going to torture them. While the little patients are in your charge, be honest with them, do not deceive them in any way if you care to have them respect you.

Explain to them the necessity of properly caring for the teeth—why they should be filled or extracted. Some children are very inquisitive and want to know why this and that should be done. Sometimes just an explanation is all that is necessary. These little folks are very impressionable at such a tender age and readily acquire habits which may conduce to either their permanent good or injury.

TREATMENT OF "CHALKY" TEETH."*

BY DR. P. H. CALLAHAN, LLANO, TEX.

Ten years' constant use of my method fortifies me in commending it to you as a substitute for any other method unlike it, in the treatment of all "chalky" teeth, both deciduous and permanent. (You may except the anterior if you like.)

Prepare cavity, as well as temperament of patient will permit, partially dry cavity, then with a small bit of cotton, twisted on an excavator and slightly moistened, apply it to powdered Argenti Nitras, then apply to all parts of cavity; with same moistened pellet, pick up bits of dry amalgam, and rub into all parts of cavity; pack with raw cotton and let stand while filling is being prepared; wash out cavity, dry as well as possible and fill with whatever composition you deem best suited to the case in hand.

In the use of cement, it hardens after a very few minutes, as well under saliva, and is quite as durable as that protected. I have protected it for an hour, and have relieved it almost at once, the instant of insertion, and found no difference. I would not apply wax or varnish for the results are better without. Its the mouth it is placed in, and not the manner in which it is manipulated which makes it a failure or fairly durable.

Try this method and you will find the tubuli pretty well sealed up and the walls of the cavity effectively "Japanned." Remove outside stain by wiping off quickly with small pellet of cotton moistened with muriatic acid, wash at once, as no harm is done by the acid.

Decay will be arrested if this method is followed, the application to be made on two several days, whether a filling is inserted or not; it does not cause any damage to nerve, though all deciduous teeth fail to "shed" properly when filled with amalgam.

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*Extract from Texas Dental Journal.

CASES IN PRACTICE.*

BY F. H. BAILEY KING.

No. 1.—Miss S., aged 23, came to me in September, 1900, complaining of toothache, etc., and on examination I found the mouth full of old stumps, etc., and situated on the right side between the canine and the first and second bicuspid stumps was a large swelling, about an inch in length (from canine backwards), shaped as a half circle with the convexity upwards, of a glistening purple color.

The patient on September 18, 1900, was given gas and ether, the stumps removed, also the growth with the labial surface of the alveolar plate, also the matrices between the teeth, and the remaining bone was well scraped.

The growth was sent to the Clinical Research Company for examination; they then reported myeloid sarcoma with well defined giant cells. The patient I again saw six weeks later, when the growth had recurred. I now sent her to a London hospital, where she was taken in and the growth again removed on November 8, 1900.

The patient I next saw some three weeks later, when I found the sarcoma had again recurred. I again sent her to town, and she was again operated upon on December 10, 1900, and so far there is no sign of recurrence.

No. 2.—Mrs. J., aged about 40, came to me with a large swelling extending from the lateral to the second molar, or even further. In March, 1898, she was taken into the Cottage Hospital and Dr. Thomson removed the same freely, taking all the alveolar plates; she now wears a denture, upper and lower. She has had no recurrence of the growth, which was an osteoma.

No. 3.—John Epps, a sailor, aged about 65, met with an accident in 1896 by falling down stairs, fracturing his lower jaw in the canine region on the right side.

The canine had to be removed, thus leaving few teeth in the lower jaw. I put up the fracture with an interdental splint made of vulcanite with a four-tailed bandage (somewhat after Gunning). I took the splint away in about three weeks' time, when I believe the jaw was more or less united. He returned to me about six weeks later with a large swelling situated just below the fracture.

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*From Journal British Dental Association.

It proved that he had had a fight and received a blow on the lower jaw about two or three days after the fracture had first been reduced. The swelling was opened and pus came freely away, and on probing, dead bone was felt; this some days later was removed, and it was found that there was extensive necrosis on either side of the fracture. The necrosed portions were cemented together and gave some trouble in separating the two broken ends; they occupied the space of about a quarter of an inch. After all the inflammation had subsided I again put the jaw up in an interdental splint, with the result that it became properly united and has given no further trouble. There is now some small displacement of the lower jaw—an inclination to the right side—but nothing very noticeable, and not what one would expect. The time occupied by the case from commencement to finish was about three months.

The patient was afterwards one of the few men saved from the lifeboat disaster of 1897, coming in under the boat itself.

BOOK REVIEWS.

Principles and Practice of Operative Dentistry.—By John Sayre Marshall, M.D., Dental Surgeon U. S. Army, President Army Examining Board. Philadelphia: J. B. Lippincott Co., Publrs., 1901.

The author has endeavored to make this a book suitable to the needs of both practitioner and student. It is a question whether this can be successfully done without either curtailing that additional information the practitioner should receive, or duplicating what the student is receiving in other departments. For instance, chapter I takes up the "Classification and Descriptive Anatomy of the Teeth," following the lines of descriptive matter in Broomell's Dental Anatomy which in our colleges is made a special study. Had the author presented the subject of "the macroscopic anatomy of the teeth with reference to operative dentistry," it would have been timely and thoroughly apropos.

Chapter II., "Origin, Development and Morphology of the Teeth."

Chapter III., "Histology of the Dental Tissues."

Chapter IV., "Eruption of Teeth," are subjects taught before operative dentistry proper is taken up.

Chapter V., Treats of "Bacteriology of the Mouth," which should be taken up in the regular bacteriological course. Here, then, are over one hundred pages of matter studied in our colleges in other departments. With chapter VI., "Examination of the Mouth and Teeth," the subject proper really begins.

"Deposits and Stains on the Teeth," a subject the student should understand when he is admitted to the operating room, for it is about the first of the operations to be performed, is not considered until chapter XXXVII. is reached, page 521.

The subjects of enamel cleavage and cavity preparation are not as full and comprehensive as they should be. But the subject of "Dental Caries," covering fifty pages, is the most complete of anything yet presented. The pathological portion of the work is very creditable.

Everything considered it is a valuable treatise on this subject; the text is well written, and with few exceptions, well arranged. The 618 illustrations add materially to the value of the work.

Studies of the Internal Anatomy of the Face.—By M. H. Cryer, M.D., D.D.S., Professor of Oral Surgery Dental Department University of Pennsylvania. S. S. White Dental Mfg. Co., Publrs., 1901.

Our readers are probably familiar with the extensive and excellent work Dr. Cryer has done in anatomy, especially the internal anatomy of the face. He has from time to time presented his findings to dental and medical societies, and a number of articles have been published in the Dental Cosmos and other journals, but these presentations have been but fragmentary portions of the actual work accomplished, being but partial reports detailing the heretofore unobserved or unrecorded facts as they were disclosed.

By his many and accurate dissections he has proven erroneous various teachings that have been heretofore unquestioned.

The results of these extensive investigations are given in this book, making it a most valuable work for student and practitioner.

It is well written, printed and bound, and the many excellent half tone engravings make the meaning of the text unmistakable.

Questions and Answers.—Embracing the Curriculum of the Dental Student; divided into Three Parts. By Ferdinand J. S. Gorgas, A.M., M.D., D.D.S., author of "Dental Medicine," etc.; Professor of the Principles of Dental Science, Oral Surgery, etc., in the University of Maryland, Dental Department, Baltimore. Published by P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia. Octavo, 540 pages. Price, cloth, $6.00 net.

In compiling this book the object of the author has been to furnish a text-book for those who are preparing themselves for a college course of dentistry; to assist the student during his college course in reviewing the subjects that compose the curriculum of each of the various dental schools; and also to assist him after graduation in preparing for the examinations required by the State Boards of Dental Examiners.

Used judiciously a good quiz compend is valuable, but in no sense should it take the place of text books. In the hands of students it is a dangerous tool, for they are prone to use it in place of the regular text instead of making it an adjunct to the text-book. Such practice will make any man's learning superficial, for all he may be able to answer, in a way, many questions on leading subjects. To refresh one's memory, however, after having carefully studied the various text-books, it is a valuable aid and this work compiled by Prof. Gorgas is the most complete we have yet seen.

DENTAL METALLURGY, a Manual for the use of Dental Students, and Practitioners. By Chas. J. Essig, M.D., D.D.S. Revised by Augustus Kœnig, B.S., M.D., Demonstrator of Metallurgy in the Dental Department, University of Pennsylvania. Fourth Edition, revised and enlarged. Philadelphia: Lea Brothers & Co., Publrs.

The fourth edition of Essig's admirable work shows a careful revision of and a number of additions to the text. One of the most valuable additions is the series of experiments for the use of students in dental colleges having laboratories for the practical study of metallurgy. These experiments, which have been carefully thought out and adapted to the wants of students beginning the practical study of the subject, are illustrative of the physical properties of the metals in general, and will enable the student to understand the significance of the facts as stated in the chapters on the different metals.

The chapter on amalgams has been thoroughly revised and made to embody the latest investigations in that class of compounds.

The revision of the book took place before Dr. Essig died and was in accordance with his dictations.

It is the best work we have on this important subject.

ECKLEY'S ANATOMY OF THE HEAD AND NECK.—Regional Anatomy of the Head and Neck. A text-book for Students and Practitioners of Dentistry. By William T. Eckley, M.D., Professor of Anatomy in the Chicago College of Physicians and Surgeons, etc., etc., and Corinne B. Eckley, M.D., Professor of Anatomy, Chicago School of Anatomy and Physiology, etc., etc. In one octavo volume of 240 pages, with 36 engravings and 20 full-page colored plates. Cloth. $2.50 net. Lea Brothers & Co., Publrs., Philadelphia and New York.

A most excellent work covering that portion of anatomy that is of especial interest to the dentist. The book contains 240 pages, treating the following subjects: The Tri-facial Nerve, 27 pages; Muscles of Mastication, 19 pages; Roof of the Mouth, 7 pages; The Mouth, 18 pages; The Intramural Sinuses and Nasal Fossa, 12 pages; The Emissary System of Veins, 11 pages; Cutaneous Structures of the Face, 12 pages; The Facial Nerve, 8 pages; Boundaries and Triangles of the Neck, 8 pages; Cervical Nerves and Muscles, 7 pages; Blood-vessels of the Head and Neck, 17 pages; The Brachial Plexus, 9 pages; Surgical Regions of the Neck, 10 pages; Muscles of the Neck, 8 pages; Deep Cervical Structures, 12 pages; The Sympathetic Nervous System, 9 pages; Osteology, 20 pages.

It is seldom one sees a book so well arranged and so concisely written as this one.

At the end of each chapter quiz questions are given covering the text in that chapter.

The engravings, and especially the colored plates, are fine and if the student cannot get a correct understanding from their study it must certainly be his own fault.

Few of our text-books are as well gotten up and this excellent work should find a ready and extensive sale.

AFTERMATH.

PERSONAL AND MISCELLANY.

PIGMENTATION OF THE GUM TISSUE: Where fillings of tin have been inserted we often notice pigmentation of the gum tissue near the filling. Dr. Morgan believes this to be due to particles penetrating the tissue when the filling is inserted. If care is taken to wash out these particles at the time of operation, he says, no discoloration will result.

TO ENCOURAGE ORIGINAL RESEARCH: In order to encourage original research, the Toronto Dental Society offers to its members three cash prizes for original, scientific dental research, done during this session, November 1st, 1901, to June 1st, 1902. Other dental societies should take the matter up and do likewise.

The Dental Era is a new, 48-page dental journal, edited and published by Drs. Kennerly and Prinz, St. Louis, Mo. No. 1 made its appearance in January, 1902.

We wish our friends success in their new venture.

A New Dean: Dr. W. H. Carson, Milwaukee, Wis., is now dean of the Dental Department, Milwaukee Medical College, Dr. G. V. I. Brown having resigned the deanship in January. Dr. Carson is well fitted for the position and we predict for him a successful career.

Beware: Poison in false teeth nearly ended the life of Dr. Ellis Phillips, of New Haven, Pa., recently. While visiting a patient at Adelaide, he took dinner with the family.

To eat, he put his false teeth in his vest pocket, and when he replaced them in his mouth, after the meal, a half-grain tablet of atrophia stuck to the plate. The ordinary dose is one-sixtieth of a grain. When the doctor's train reached Connellsville he was delirious, but afterwards recovered.

Moral: Don't put your teeth in your vest pocket when you want to eat.

Removal: The Pittsburg Dental College will be moved April 1st., to the Pennsylvania Railroad Office Building which will give them more commodious quarters and better accommodations.

McKinley Portrait: The Arlington Chemical Co., Yonkers, N. Y., have issued a fine portrait of McKinley, which will be sent to physicians and dentists for the asking.

Tell Your Friends what an excellent practical journal The Dental Summary is and urge them to send a trial subscription.

Every dentist who reads it is bettered thereby.

THE DENTAL SUMMARY

Vol. XXII *APRIL, 1902* *No. 4*

CONTRIBUTIONS.

PECULIARITIES OF THE LEFT SIDE OF THE MOUTH.

BY DR. L. P. HASKELL, CHICAGO, ILL.

For many years I have called the attention of dentists verbally and through the journals to certain peculiarities of the jaws pertaining to the left side of the mouth, some of them to the extent of 95 per cent. of cases.

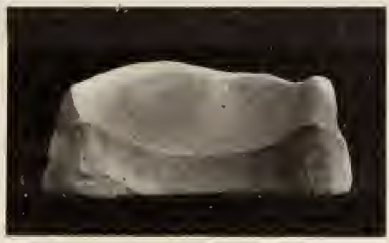


Fig. 1.

The causes of these conditions have not been satisfactorily explained, in fact very few dentists seem to have interested themselves in the matter.

To awaken further interest in the subject, I will enumerate them and illustrate, as follows:—

I. In 95 per cent. of edentulous upper jaws there is a depression over the left cuspid not always observed until a plate has been formed on the model.

II. In at least 50 per cent. of cases the alveolar process is shorter on the left side than on the right.

III. In 90 per cent. of cases the tuberosity is lower, in many cases excessively so, upon the left side also (Fig. 1).

IV. It will be observed that the lip usually rises higher upon the left side.

V. Upon the lower jaw in a very large per cent. of cases, the teeth are higher and more prominent upon the left side, in region of the cuspid, so that it is often difficult to arrange symmetrically in length and fullness, without interference (Fig. 2).

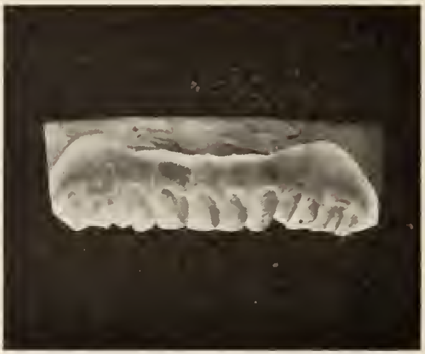


Fig. 2.

VI. Very often the left side of the lower jaw is farther from the median line, necessitating setting the teeth farther in.

Two theories have been suggested to solve problem No. 1. The first was that as the great majority of people are right-handed, food is bitten off and masticated on that side, the result of which would be greater development of the bones.

Another theory, by Dr. Talbot, was that the human jaw in masticating moves from right to left, the result of which, he claims, is the gradual movement of the teeth and alveolar process to the left, leaving the superior maxillary prominent over the right cuspid and depressed over the left.

Neither of these theories seem satisfactory, and no solution of the other peculiarities has been presented. The writer would be glad to hear what others have to say upon the subject.

A METHOD OF FORMING SECTIONAL GOLD CROWNS, BANDS, OR OPEN FACED CROWNS, UPON LOW FUSIBLE METAL DIES INSTEAD OF PLASTER MODELS OR NATURAL TEETH.

BY A. S. CONDIT, D.D.S., MT. VERNON, OHIO.

Prepare the tooth, or root, to be crowned in the usual way, so that a wire measurement, at the cervical border, can be easily removed.

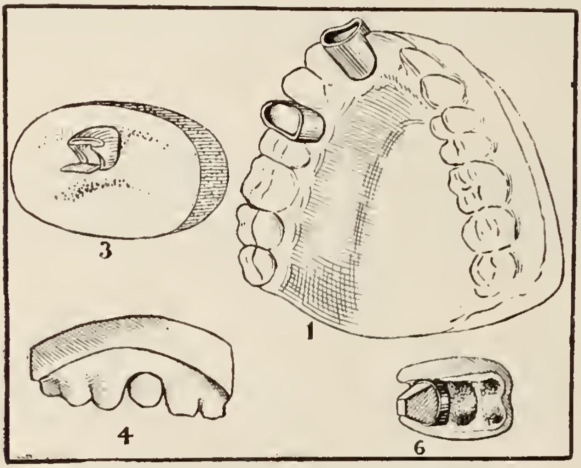
If the crown or band is to be made for any of the anterior teeth, cut the ends of gold square; if for a bicuspid or molar, make the occlusal end a trifle longer so that the band will flare sufficiently to give proper contour. Make band a little wider than tooth to be crowned is long.

After band has been properly fitted to tooth, or root, to correspond with curvature of gum, it will show as represented in Fig. 1.

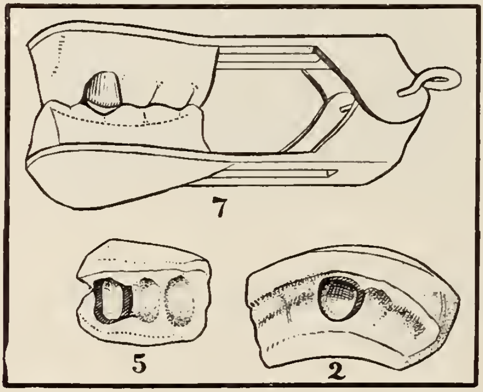
A plaster impression is next taken, if an anterior tooth, fill space between band and tooth with plaster, before inserting cup of plaster, when removed it will be as represented in Fig. 2.

If band has been allowed to pass under gum there will be a corresponding space between band and impression which must be filled with plaster or putty, without so doing it will be impossible to remove band from metal model.

Paint all exposed surfaces of gold with whiting. Encircle with rubber ring or band of paper extending about one-fourth inch above impression. Pour metal die, as soon as metal is soft enough to run; if it be any of the anterior teeth and not broken down, as shown in model, fill impression of teeth with putty before pouring model and the band will appear in position showing the metal tooth alone on model as represented in Fig. 3, making the work of fitting much better and easier than if the teeth were on one or both sides.



If the tooth to be crowned is much defaced, or a root only, do not fill impression of contiguous teeth with putty as their forms will be necessary to shape crown, as shown in Fig. 4.



Fit band closely to labial and approximal surfaces and slit palatal surface at corners as shown, and throw back the inside, so that free access may be had to sides in fitting them to models. Before soldering, dress side edges of band and flap thin where it is to lap, if gold is not long enough for a full crown when lapped; to close cutting edge, a separate piece should be soldered on.

But in making open faced crowns, the additional piece on end will not be necessary.

If crown be for bicuspid or molar, fit band in the manner described for front teeth, trim occlusal surface sufficiently for cap to correspond with tooth in opposite jaw, as shown in Fig. 1.

Take impression and articulation at same time with plaster. A lump of plaster about the size of one finger joint is placed upon band, covering about one tooth on each side of band (Fig. 5) and jaws closed, when plaster has set it is removed and placed impression side up, and a rubber ring or narrow band of paper is placed around and metal die poured as before described. The model is then mounted upon the articulator and occluding bite poured in plaster.

If the band has been properly contoured before impression is taken a metal model will not be necessary, and in such cases the impression and articulation should be taken with modelling compound.

After the impression has been removed from the mouth a core of wood should be fitted into band before impression is poured, as is shown in Fig. 6. The model is then mounted upon articulator and occluding bite poured. When separated the band is found upon the wooden core, and can be taken off without fear of breaking as well as from the natural tooth. While band is in position upon wooden core, it is filled with soft plaster and articulator closed and a perfect imprint of the occluding tooth is secured (Fig. 7). The band can then be removed and a fusible metal die and counter made of the occluding surface, and a cap of gold swedged to correspond.

The Ash or Millett's system of swedging cusps of any form will be found quite useful for the purpose.

I do not favor the use of gold crowns for conspicuous places, thinking that in almost every instance something more in harmony with nature for the anterior teeth might be used. There are many in the profession who think differently. For those who favor the making of gold crowns or bands for the front teeth it will be of great advantage to have the metal dies over which to form them.

A FEW POINTERS FOR COUNTRY DENTISTS.

BY DR. E. H. RAFFENSPERGER, MARION, OHIO.

We are often annoyed by our rubber gas tubes breaking. Get a penny clay pipe, break the stem into pieces about an inch long, and use one as a connection by slipping the broken ends of the tube over the piece, and your tube is as good as new. For gold plate, go to the bank, and pick out the oldest U. S. gold coin you can find. The older the better, not later than 1840, and roll it out. You will be pleased and surprised at the color. Instead of having your impression cups all jumbled up together in a drawer or box, get a board about 15 inches wide by 18 inches long, get some small brads and drive in, making several rows, allowing enough of the brad to be used as a hook, hang the board up near your bench and put the cups on the brads by making a hole in the handle of the cup, and your cups are always in sight, and you can pick out just what you want at a glance.

The next time you need any liquid silex, go to your druggist and let him order from his dealer about 50 cents worth of "liquid glass," as it is called by druggists. He will get you about one quart of the "real stuff," which will last a year or more.

* * *

A PRACTICAL MAN FROM NECESSITY.

BY H. M. SEMANS, A.M., D.D.S., COLUMBUS, O.

One day several summers ago I had the pleasure of the acquaintance of an old-time dentist and his methods at his home, up in a little French Canadian village. He was a clock tinker by trade, but a genuinely true professional gentleman when it came to dentistry. The necessity of life had given him his trade when a young man away back at his old home of Aberdeen. But dentistry by hard work and close application had become an art and science with him, and all this with what he could construct himself. About the only things he had not made himself was a Morrison engine and the burs. His chair was a wonder. He said he picked it up in some junk shop in Quebec. It looked as though it may have once graced a European prince's throne. It was built of heavy Flemish oak, finely carved, and upholstered in badly worn leather curiously designed. The design on the seat, I remember, being a crown with a mailed fist above it. He had altered the back so it would move back just like our modern day Morris chair. His head rest was of his own making and well adapted to the chair. His instrument case was of so unique a design that it would bear a separate discription. But best of all were his methods of work. I watched him make and put on two gold crowns in but a little over an hour, and this is the way he did it: An English gold coin, a sovereign, was first rolled and hammered until it was of proper gauge, about 30, I thought. The two teeth were then quickly measured, a second bicuspid and first molar superior on the left side; the bands were cut out and soldered over his little alcohol lamp; they were then tried in position and properly trimmed. Whistling and singing away to himself he took a quick survey of the bite and out the bands came. Next a block of lead, about eight inches long, four wide, and one thick, was produced and upon this he placed his bands, occlusial ends down, and pressed them just enough into the lead so as to leave an impression. Then he took up two steel instruments, one the size of a lead pencil, the other about half as thick, each with rounding end, and with a hammer quickly and carefully made cusps inside the band impressions, and thus without any trouble he had his cusp impressions to suit his idea of depth and all. Then taking a piece of the rolled-out coin he soon shaped with the same two steel instruments and his hammer, his cusps in turn. Only a few minutes to place them on the bands, wire and solder them and they were ready to try in the mouth again. The patient was then told to bite down hard and all around. He then removed them and showed me that the occlusal surface had been changed but very little by the occluding teeth. Inside he put a little lower grade solder than that which he had used before, and the work was done. His burnishing and polishing were done on a sewing machine, and the lathe-head and belongings had been constructed by himself. In thirty-seven years' time he had seen but two dentists work, the first was his preceptor in Boston, under whose instruction he had been for a few months many years before. The other was in Montreal, when he once went up there on an excursion. He had stored away in his memory the schemes of many appliances and at his leisure had constructed them. I watched him fill a second superior bicuspid, distal surface, with gold. In lieu of rubber dam he clamped napkins about the teeth with a contrivance of his own make. This he did after he had prepared the cavity and had all the gold and instruments at hand. His gold came from the large cities and he made the complaint that it was so "sticky" now-a-days. He worked his pieces quickly and accurately, partly hand pressure, lastly by malleting. His pluggers were all of his own make and not over a dozen in number. Some were slightly serrated, the rest smooth. His idea of the serrations was simply to prevent slipping. He made his own solder, and had two grades. He gave me his formula. and my recollection is one grain of copper, two of silver and twelve of gold, for low grade, and eighteen of gold for high grade. The gold of course in all cases being coin gold.

But most wonderful of all was his fan above the chair. He had copied from some picture of an American restaurant fan. And the motor was a collection of wheels and weights that would have, taking their size into consideration, run any church steeple clock. The motor, however, was out of order so I failed to see it work. Altogether he was a man worth knowing, and in other surroundings of a more advantageous nature would have been known to the world as a wonderful man in his profession. But as one of his neighbors said: "Yes, he tinkered my clock and it runs very well."

A METHOD OF FINISHING ALUMINUM PLATES.

BY V. I. MILLER, D. D. S., FOSTORIA, O.

I have been using a method of finishing aluminum plates which I have found more satisfactory than any polish I have been able to get on them, and thought it might be of interest to some readers of THE DENTAL SUMMARY. After rubber attachments are polished: First, wash the plate in benzine or gasoline to remove any grease or oil that may be on the plate; second, apply a 40 per cent solution of caustic potash; third, nitric acid, full strength, then wash in clear water.

The potash and acid may be conveyed by means of a small piece of cotton held in soldering pliers.

I have plates treated in this manner that have been worn about two years and their appearance is still very pleasing.

PRACTICAL SUGGESTIONS.

BY DR. G. B. SPEER, YOUNGSTOWN, O.

TO GET THE HOLLOW BACK EFFECT IN MAKING RICHMOND CROWN.

After you have your facing backed and waxed on and are ready to invest, cut a strip of gold plate about one-sixteenth of an inch wide and long enough to reach from the corner to the lingual edge of the floor of your cup, down to the other corner and extend over far enough to catch in your investment.

Warm this loop, set it edgewise in the wax, letting it touch the backing at the two corners and stand a little above the band at the lingual lobe. Now invest and solder. The loop at the corner extending into the investment will hold the loop in place and the solder will flow upon the strip of plate, giving the hollow back and restoring the lingual lobe.

A HANDY PUNCH FOR PUNCHING BACKINGS.

Take an old pair of pliers, file the points to the size of the pins, then punch out the guide pin and use the holes thus made to insert a screw to draw the points together. Now, by the use of the screw, adjust the points to the proper width of the pins, lay your backing on the end of a hard-wood block and punch both holes at the same time and you will have a good fit.

INTERNATIONAL DENTAL FEDERATION.

(Concluded from page 128.)

Dr. Roy. This discussion is a very important one, as opportunity is given to us to hear the views of the representatives of two opposite parties,—those who claim a medical education for the dentist, and those who are of the opinion that to the dentist a special education should be given. The controversy between these two parties is not a new one, as we find it at the beginning of the organization of dental education. The first dental school of the Baltimore College of Dental Surgery, was founded only after many unsuccessful attempts to institute the teachings of dentistry in the medical schools. It was the foundation of this school that initiated the autonomy of dentistry. This difference between the two principles, the medical principle and the odontological principle, is not only a very ancient but also a very general one, and is found in all countries to a greater or less degree.

What are the reasons for the sometimes very warm controversies between people who are animated with the same ideal,—the progress of the profession? The reasons are to be found in the special features characteristic of dentistry, which is a mixed profession, and in the fundamental nature of the problem calling for decision, viz, whether dental education should take for its basis the medical studies, or whether the dental studies should constitute an autonomous education.

Those who have medical tendencies think that dentistry is a branch of medicine to the same degree as ophthalmology or laryngology. For them, consequently, the study of medicine represents the best preparation for the practice of this specialty, the distinctly practical subjects being acquired very quickly. Following this line of thought, Dr. Arkövy told us yesterday that six months of special study is all that is required. Those of the opposite party, on the contrary, proclaim the autonomy of the profession. While acknowledging that dentistry has some points in common with medicine, such mutual borrowings as are frequent between the sciences, they claim that skill plays a very important *role* in the practice of dentistry; that this skill takes time and is difficult to acquire, and that it is not very much to devote to it a few years of progressive training of the eye and hand.

Hence, I think that the whole problem resides in this difference of appreciation of the time necessary to acquire manual skill. Some think that this should be of short duration; others, on the other hand, that it should be of long duration. There is, in fact, a point that should be established at the beginning of this discussion, and this is that it is not possible in four or five years to become both a good physician and a good dentist; it takes almost ten years. But such a long period of study is impossible to require either from the medical or from the dental student. The result of such a measure would mean the diminution in the number of dentists, and this I think would prove to be the most detrimental in the sense that those with limited means could not have their teeth attended to, as the diminution in the number of denists would result in the raising of fees. All classes of society should be able to profit by the progress made by dental therapeutics, and I do not agree with Dr. Guillermin, who, in the report that he read yesterday, complains of the large number of dentists and of the tendency to use charlatanic proceedings which are detrimental to the dental profession and which are brought about by this accumulation of dentists.

The medical degree for the dentist is only an exception. Note the conditions existing in Austria, where this diploma is required; there is, in spite of all, a special group, the Zahnkünstler, which make a competition to the *médecin-dentistes,* naturally brought about by the reasons I have pointed out to you, and if the Zahnkünstler exist it is because they answer an existing need. Hence, as I think I have proved that a too long period of time cannot be demanded (four or five years seems to me to be the maximum that could be asked), it is indispensable to make an appropriate division between the theoretical and practical teaching. It can be seen by the data in my report to the Paris Congress, quoted by Dr. Arkövy and erroneously attributed to my friend, Dr. Godon, that in the majority of dental schools the number of hours devoted to theory is considerably inferior to those devoted to practical work.

Nevertheless, Dr. Arkövy and myself differ altogether with regard to the division of time. In order to oppose the propositions that I have furnished he has calculated the number of hours devoted in the European universities to medical studies. He found that the University of Buda-Pesth (and the same is the case for the other universities) that in five years the number of hours devoted to study amounted to 8632, and that of these 5002 are devoted to theory and 3630 to practice. He then says: "Hence, for many centuries the physicians have been badly educated!—for, contrary to what takes place in the dental schools, they have devoted more time to the theoretical studies." But Dr. Arkövy forgets just one thing, and this is that the object of the medical schools is to make physicians, and that medicine is a profession which requires the minimum amount of manual skill. If the medical schools, on the contrary, had only to educate surgeons, they would have to modify those plans by giving a greater amount of importance to the practical subjects. This is what is done in the case of those medical students who in the future will take up surgery exclusively. They devote more time (than do those who will take up medicine) to anatomical work and to operative medicine, and this with the object of increasing their manual skill. I do not want to prolong this discussion, but I think that the principle should be established that dentistry is undoubtedly a scientific profession and also a handicraft, and we need not feel ashamed of it, as does Dr. Arkövy. Hence, if it is a handicraft, it requires, as any other trade, a prolonged apprenticeship of the hand and eye, and in order not to prolong the period of study the greatest part of this should be devoted to the practical studies.

It is understood that theory should not be neglected before beginning and during the practical studies, but then the practical subjects should never be neglected, for without it good dental therapeutics (the final purpose of odontology) is not possible.

Dr. Godon. The discussion demands that the commission should not study those points which bring about controversy, but those questions upon which it is easy to agree, and particularly the program of dental education. For this purpose it would be advisable to take up the five points as brought forward by Dr. Sauvez in his report. These points were as follows: (1) Preliminary education. (2) Duration of the course and the order in which the different subjects shall be taken up. (3) Program of the scientific and medical education. (4) Program of the technical teaching. (5) Qualification and diploma.

He would propose the appointment of five members for the separate study of every one of these questions, the individual reports to be presented at the next session of the commission in 1902. He made a motion to the effect that the members be appointed at the next meeting at Cambridge. Carried.

Dr. Brophy asked how many countries are represented in the Federation, and was told that sixteen countries were represented, and that twelve had sent delegates.

Dr. Brophy expressed a desire that there might be representatives of all countries and schools. He said that he regretted the absence of English members in the commission.

Dr. Godon explained that Dr. Cunningham and Dr. Paterson are members of the commission representing England, but that the latter, on account of his position of secretary of the British Dental Association, had not been able to attend the meetings regularly, and that it was not possible to make an official invitation to the British Dental Association on account of difficulties met with in the organization of the new branches.

He then said that all the members would now agree in asking President Brophy to inform the British Dental Association at this afternoon's meeting of what has been done up to the present, to excuse the commission for not having addressed an official invitation to the British Dental Association, the commission being unable to do so on account of not being completely organized, and to invite the members of that association to take part in our future meetings.

It was decided to hold the next meeting in Cambridge, August 7, at 11 A. M.

CAMBRIDGE, AUGUST 7, 1901.

The meeting was called to order at Trinity College Hall, Cambridge, at 11 A. M. by President Brophy.

The following members were present, Drs. Brophy, Godon, Bryan, Pearson, Queudot, Viau, Aguilar, Kirk, Grevers, Zsigmondy, Weiser, Frank, Quartermann, Baruch, Hesse, Huet, Haderup, Paterson, Rosenthal, Sauvez, Harlan, and Roy. The following were absent: Drs. Förberg and Cunningham.

Dr. Roy, the secretary, read the report of the previous meeting, which was accepted after some remarks by Drs. Aguilar and Zsigmondy.

Dr. Sauvez announced that the committee of the International Dental Federation had appointed Dr. Pearson adjunct member for the present meeting.

Dr. Godon announced that two new propositions had been received from Dr. Sauvez and one from Dr. Roy.

Dr. Sauvez' proposition reads as follows:

"The delegates of each country represented will be requested to prepare for next year's meeting a *résumé* of a few pages describing without any commentary the dental legislation and education of their respective countries.

"The Commission would print these reports.

"In the case of countries being represented by more than one delegate the member who should write the report would be appointed by the various delegates."

After a few remarks by Drs. Aguilar, Quartermann, Paterson, and Roy this proposition was adopted.

Dr. Roy's proposition reads as follows:

"The Commission shall appoint a member to study the conditions of affiliation of all the schools to the International Dental Federation, and also the means of bringing about such affiliation, so that the Commission shall be in a position next year to adopt appropriate resolutions."

Dr. Godon said that this proposition was embodied in Dr. Spaulding's motion to the International Dental Congress, and proposed that the two propositions shall be combined in one.

Dr. Rosenthal then read Dr. Spaulding's proposition, and both propositions were adopted. Dr. Rosenthal was appointed to study and report upon these subjects.

Dr. Brophy announced that members would now be appointed to report upon the following questions proposed by Dr. Sauvez:

1. Preliminary education.
2. Time, duration, and order of studies.
3. Program of the scientific and medical education.

4. Program of the technical education.

5. Qualification and diploma.

Dr. Aguilar said that he was surprised to observe that his propositions had been totally ignored.

After a discussion in which Drs. Godon, Hesse, Sauvez, and Brophy took part, it was decided to take up Dr. Aguilar's proposition as the basis of the discussion.

Dr. Aguilar then read his first proposition:

That a member be appointed to report and present resolutions next year upon each of the following questions:

(1) What should be the preliminary requirements for admission into dental schools?

Dr. Godon proposed to suppress the words dental schools, which might awaken prejudices.

Dr. Rosenthal also made some remarks with regard to the changing of the wording of this proposition.

After a discussion to which Drs. Godon, Grevers, Paterson, Rosenthal, Hesse, and Aguilar took part, the proposition after some changes in its wording was adopted.

Dr. Aguilar then read his second proposition:

(2) What are the theoretical and new studies that the student should have concluded before being admitted to the practice of dentistry?

Dr. Sauvez proposed to divide the proposition into three parts.

1. Theoretical, scientific, and medical studies.
2. Theoretico-technical studies.
3. Practical studies.

Dr. Godon proposed only two divisions:

1. Scientific and medical studies.
2. Technical studies.

Drs. Weiser, Rosenthal, and Hesse asked that Dr. Sauvez' second proposition referring to the time, duration, and order of studies be the one to be adopted, as it is clearer and more precise.

Dr. Rosenthal proposed the following wording, which was endorsed by Dr. Aguilar:

(2) What shall be the composition, duration, and order of the subjects of the program of dental studies?

The proposition as thus stated was adopted.

Dr. Aguilar read his third proposition:

(3) What part of the studies which are taught in the medical schools shall be followed by the dentist?

Dr. Kirk proposed to modify the proposition so that it might read as follows:

(3) What part of the studies such as are taught in the schools of medicine shall be followed by the dental student?

Dr. Brophy said that the term medicine is too general, and that it should be specified what part of anatomy and therapeutics should be taught to the dentist.

After observations by Drs. Grevers, Roy, Godon, Rosenthal, and Paterson, Dr. Aguilar's third proposition as modified by Dr. Kirk was then adopted.

Dr. Aguilar then read his fourth proposition:

(4) Which is the best title to be given to persons practicing the therapeutics and the prosthetic treatment of the diseases of the mouth and teeth?

Dr. Hesse proposed not to consider this proposition, which seemed to him to be altogether out of place.

Dr. Roy proposed to add another proposition to those already adopted:

"What shall be the composition of the boards that accord the right to practice?"

This proposition was not adopted.

Dr. Rosenthal presented in the name of Dr. Bryan the following proposition:

"That a commission be appointed to study the means of educating the public upon dental matters."

Dr. Godon was of the opinion that this proposition should be submitted to the Executive Council of the International Dental Federation in the same way as Dr. Cunningham's proposition was sent to that body.

Dr. Sauvez, in order to give some consideration to the proposition presented by Dr. Paterson at the beginning of the discussion, and in order to simplify the work of the Commission, made the following proposition:

"Each member of the Commission of Education is requested to make a report upon the questions that have been referred to as far as it touches upon his own country.

"Such report is a personal one and is not binding upon the countries represented. It should be addressed before March 1, 1902, to the secretary of the Commission who is in charge of the printing of the reports which are at that time to be addressed to each member."

This proposition was adopted.

Dr. Aguilar remarked that in view of the expenses which the work of the Commission would involve for the publication of the transactions, he would make the following proposition:

"A voluntary subscription is opened between the different members of this Commission and the societies represented, so as to collect the necessary funds for the publication of the transactions of this meeting and of those that may take place later on."

Carried.

Dr. Aguilar also proposed:

"That all the propositions to the Commission must be presented in writing before they can be taken up for consideration."

Carried.

Dr. Godon made a motion with regard to the extension of the powers of the present officers to the next meeting in Stockholm, which was carried.

The International Commission of Education then adjourned.

CURRENT ARTICLES

[Condensed for The Dental Summary readers.]

GUTTA-PERCHA AS A MEDIUM FOR ATTACHING CROWNS AND BRIDGES.

BY S. H. GUILFORD, D.D S., PH.D., PHILADELPHIA.

Besides possessing the very desirable properties of non-solubility in the oral fluids and almost perfect non-conductivity, gutta-percha has two other qualities which render it pre-eminently valuable as a medium for crown or bridge attachment.

Its slight elasticity, while not in the least interferring with its stability, serves as a cushion or buffer in preventing any sudden jar from being transmitted to the root. This may not count for much so far as comfort is concerned, but it is of considerable importance in lessening the liability of fracturing the porcelain facings in mastication.

The ease of removal of the crown or bridge for repair or alteration is another feature which strongly favors the use of gutta-percha. It solves the problem of removable bridge work in the simplest manner, for by its employment all bridges and crowns are removable.

While different kinds of gutta-percha have been experimented with, the ordinary red, base-plate variety has proven the most desirable for attaching crowns and bridges. It is very pliable when heated, and stiff when cooled, and its surface is sufficiently softened and lubricated by the solvent eucalyptol.

For convenience, a piece of about a third of an inch in width is cut from the base-plate, which after being warmed is readily drawn out into a thin strip. This is then cut into pieces of suitable size, and laid upon a warming appliance.

A Howe gutta-percha heater with its soap-stone disk, as shown in Fig. 1, is very convenient for this purpose.

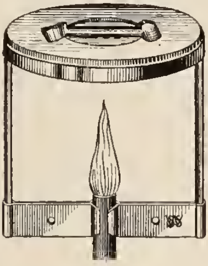


Fig. 1.

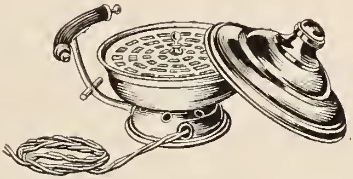


Fig. 2.

For an unbanded crown, such as the Logan or the gold and porcelain dowel crown, an oval-shaped piece of thin gutta-percha is perforated and slipped over the dowel up against the crown. The dowel, after being barbed, is painted with a solution of the base-plate in chloroform or eucalyptol and wrapped with a strip of the warmed gutta-percha. This is readily moulded to the dowel with the fingers.

The crown thus prepared is tried and pressed into the root, which latter should always be kept wet with saliva during the trial stages, to permit the ready removal of the piece. After withdrawal, the surplus gutta-percha should be trimmed off with a sharp knife, the whole crown again heated and forced into the root by the pressure of the fingers. These retrials should be continued until the crown can be pressed nearly into place. The root is then protected and thoroughly dried by hot air, the crown meanwhile being well warmed on the heater. When all is ready for the final setting, the face of the root, the root canal and the gutta-percha on the crown are each moistened with eucalyptol and the crown pressed quickly to place. A small napkin will assist in carrying the heated crown to the mouth and in forcing it into position.

For a banded crown the operation is similar, except that instead of placing a piece of gutta-percha over the base of the crown inside of the cap, a very thin strip of it is placed around the inside of the band and attached to it either by heat or by the solvent.

In the preliminary trials a sufficient quantity of the gutta-percha will be forced from the band to cover the end of the root.

In attaching a hollow metal crown, if the support which is to receive it is sufficiently large to nearly fill the crown, a strip of gutta-percha as wide as the height of the crown is heated and attached to the inside of the crown throughout is circumference.

By heating and trying it in place several times, with the support kept wet, the thickness of the gutta-percha inside the band will gradually be reduced until a fit is secured, the surplus gutta-percha working its way toward the top of the root or support.

In the final setting the support is dried, coated with eucalyptol, and the heated crown forced into place.

Where the entire natural crown is gone it is best to insert screw wires of German silver in the root canals, and build up with cement nearly to the size of the original crown before the shell crown is constructed. This leaves a minimum amount of space for the gutta-percha, which insures greater solidity. As the cement support is eventually entirely covered by gutta-percha and united to it by the solvent, the fluids of the mouth will not be able to permeate it and cause it to become foul.

In some cases this building up of the support with cement may be dispensed with and the metal crown filled entirely with gutta-percha; the projecting screws in the root furnishing the necessary support.

In the case of a bridge where two abutments and, indeed, the entire piece, has to be very thoroughly and uniformly heated before its final setting, an electric heater should be employed where the current is available.

The writer has found the Kerr electric annealer, as shown in Fig. 2, to be admirably adapted to this purpose. By it the piece is heated gradually and without any danger of injury, the cover contributing to the even distribution of the heat.

Not only is a piece of bridge work very securely held in position by this means of attachment, but, as before mentioned, it can be readily removed by the application of heat whenever desirable.

Those who have employed gutta-percha for the setting of crowns and bridges and have become skillful in its use, are enthusiastic in regard to its merits.

It has none of the disadvantages of cement, and all of its supposed advantages and many more besides, and it is only reasonable to believe that as its superior qualities become known it will gradually replace the old method of setting crowns and bridges.—*From article in Stomatologist.*

BLEACHING OF DEVITALIZED TEETH WITH PEROXIDES OF HYDROGEN AND SODIUM.

BY JOSEPH HEAD, M.D., D.D.S., PHILADELPHIA.

Peroxide of hydrogen and peroxide of sodium when heated give off oxygen in great quantities. This nascent oxygen at the moment, when it leaves the compound, is most caustic, and, therefore, if we can liberate this gas directly on a tooth, we shall be able to remove any organic stain. Either pyrozone, which is a 25 per cent solution of peroxide of hydrogen, or sodium dioxide can be used. These two materials seem equally powerful, but they are somewhat different in their actions, and, therefore, would better be described separately.

If the stained tooth is pulpless and the apical ends of the canals have been tightly sealed, the treatment should be as follows: Apply the rubber dam and tie one if not two ligatures around the neck, so that leakage is impossible. Let the rubber dam go slightly over the nostrils of the patient to prevent the fumes of the nascent oxygen from irritating the air passages. Oil should be rubbed on the hands of the operator and on the face of the patient. The tooth should be dried internally and externally. Cotton soaked in pyrozone should be packed in the canal and a hot ball burnisher, such as is used in plastic work, should be placed against the cotton so that the steam of the nascent oxygen will be driven through the tooth substance. After the cotton becomes dry, it should be removed, and the tooth heated again internally with hot air, when the process described above can be repeated several times. Finally, cotton soaked in pyrozone should be sealed in the canal with hard gutta percha, so that any gas that is given off may by pressure be driven throughout the dental tubules.

Then we are ready for the second stage of the process. The enamel should be thoroughly dried with hot air blasts and heated instruments until the patient feels the heat of the tooth in the gum. This makes the oxygen within the tooth canal exert great pressure; then a piece of cotton soaked in pyrozone should be placed on the enamel, and a broad, hot instrument held against it, so that the steam shall be driven in from the outside. This should be continued until the cotton becomes dry, when the enamel should be ironed with a highly heated ball burnisher. This drives out the pyrozone that the enamel has soaked up, and in driving it out, liberates the nascent oxygen within the enamel substance. The effect of this last-mentioned ironing is most marked and the stains can be seen perceptibly to whiten. This process can be repeated in its various stages as often as desirable, and when the patient leaves, fresh pyrozone should be sealed in the canal with gutta percha, in order that the bleaching process may continue until the next visit. If, finally there is a slight stain that the nascent oxygen will not remove, a strong solution of oxalic acid should be used in the same way. The oxalic acid is not only a powerful oxidizer of organic material, but will also change any iron stain to a colorless oxalate.

PEROXIDE OF SODIUM METHOD.

What has been said about the use of pyrozone, with a few cautions, applies equally well to peroxide of sodium, as both bleach primarily by setting free nascent oxygen. The peroxide of sodium is most valuable where oil in the tooth is to be saponified, and, therefore, it will sometime succeed where pyrozone fails; however, we must remember that when peroxide of sodium touches the soft tissues, it makes a deep burn, which pyrozone would not, and, therefore, great care should always be used that the sodium dioxide does not escape from the protection of the rubber dam. When this compound is placed in hot water, the oxygen is given off so rapidly that a distinct puff is heard, but when it is melted on ice, a thick paste of the undischarged sodium dioxide can be obtained which when placed upon the dried enamel, and heated with a hot instrument will safely give off a tremendous quantity of nascent oxygen. This oxygen, as previously stated, will bleach the enamel of a tooth where the pulp is alive. When peroxide of sodium has been used it should be carefully washed off with water and neutralized with a weak acid. Before the rubber dam is removed, always be sure that none is left to burn the mouth. It is also for the same reason, dangerous to seal it up in a tooth canal unless the utmost precautions are taken against its escape.

Dr. Miller has, I believe, noted that concentrated peroxide of hydrogen under certain conditions, may attack the organic matrix that holds the enamel rods together. This is a warning that should be noted and considered. But in spite of this warning, the good results obtained by me might be explained, even though Dr. Miller's observations were generally true.

Enamel that is sterilized of its infecting bacteria is better able to preserve its integrity by the use of antiseptic washes, even though the matrix may have been slightly weakened by the bleaching agent, than infected enamel, the matrix of which is being constantly thinned by bacteria that lie too deep for an ordinary wash to reach.

But whether this method even theoretically injures the enamel, is a subject for future research. This much, however, is sure, the method presented to-night has permanently bleached stained enamel and that enamel has kept its normal color and integrity for over two years,—*Extract from article in Items of Interest.*

GOLD INLAY.

BY JOSEPH HEAD, M.D., D.D.S., PHILADELPHIA.

If a gold filling, instead of being merely held in place by undercuts, could be inserted with an adhesive lining, any leakage that occurred would thus prove harmless, because the bacteria would be rendered incapable of growth.

The inlay, to a certain extent, combines both of these advantages. Take, for instance, a gold inlay. The cavity is shaped with sharp edges, so that only one position can be assumed by the filling; pure gold of No. 36 should be burnished into place until a perfect reproduction of the cavity is obtained. Into this matrix, while it is in the cavity, moss-fibre gold can be firmly packed. Then taking it out of the mouth, a little liquid flux may be added, and the whole, half-filled with twenty-two-carat solder that can be flowed in an ordinary Bunsen burner. Placing it back in the mouth, the edges can be reburnished and more gold packed in and more solder added. Thus a gold inlay can be made with remarkable speed and with fine edges. Having, then, the undercut gold inlay with perfect edges, if we half fill the cavity with soft Harvard cement, and press the gold inlay upon it into position, carefully burnishing to the edge and polishing, we have a filling that almost if not entirely gives us an adaptation equal to gold, and with an adhesion to cavity walls equal to cement. This is almost a perfect filling, inasmuch as it combines almost all the advantages desired. Its great defect lies in the fact that it has not a good color and always has an exposed edge of cement. The porcelain inlay may have a good color, but it cannot stand so great a crushing strain as gold, and it also has a fine line of cement at the edge. —*Extract from article in Dental Brief.*

PARTIAL PLATES AND CLASPS.

DR. F. A. HUNTER, CINCINNATI, OHIO.

The practice ordinarily observed of fitting a broad clasp around the remaining tooth or teeth inevitably results in injury to same. This, combined with the method of making the plate hug the necks of the teeth as closely as possible, is a most reprehensible practice. Plates should be trimmed away so as not to touch the teeth, and a band or clasp should fit the broadest part of the tooth, away from the gum, so that when the plate comes to imbed itself somewhat in the tissues the clasp will not bury itself in the gum and cause lasting irritaton. Some time ago I made for my own mouth a partial plate which is provided with a standard and a lug extending over the end of the teeth in such manner as to prevent the plate from burying itself in the gum tissue. In order to obtain space for such a lug I frequently grind into a fissure on the occlusal surface of a bicuspid, so that there will be no interference with the articulation of the teeth. —*From report in Dental Digest.*

IMPROVED METHOD OF APPLYING ALUMINUM LINING TO RUBBER PLATES.

BY W. T. MAGILL, D.D.S., ROCK ISLAND, ILL.

There have been several methods advocated for this purpose, but until now I have never found one which gave entirely satisfactory results. Pack and flask the case as usual, wet a piece of thin cotton cloth in hot water, and place it between the cast and rubber. Have the flask and rubber warm, put the case under the screw-press for a few minutes, take out and separate flask, remove cotton cloth, and apply the liquid aluminum mixture direct to the rubber. The chief advantages of this plan are, that the lining does not penetrate the plaster, and when vulcanized it comes out bright and clean, and very little burnishing finishes the case.—*From Dental Digest.*

USE OF CUSP PLIERS.

S. ELDRED GILBERT, PHILADELPHIA.

The method by which it is used for producing cusps for soldered or solid crowns, is vastly superior to the present method of producing the cusp by means of a die plate.

The pliers are of the usual construction, about nine inches in length, in the jaws of which are fixed dies and counter dies, for producing the desired cusps. These dies are interchangeable, and with an outfit there is a full complement of the dies for producing every cusp that may be desired in soldered or solid crown work.

These dies are fixed in the jaw of the pliers and are held there by a little latch.

The cusp is produced by a single pressure of the pliers, which can be easily made with one hand, and this method enables the practitioner to produce a cusp much more quickly, with less waste of gold, and without any of the annoyance of hammering it up, as with a die plate.

This system accomplishes a saving of time, gold and noise. —*From Items of Interest.*

IMPRESSION TAKING BY THE USE OF SECTIONAL TRAYS.

This method of impression taking. while possessing many good features, has never come into general use. It consists of separate and distinct impressions of various parts of the mouth, the object being to include in the first one as much of the surface as can be withdrawn without dragging, and at the same time anticipate the remaining sections by changing the complex parts to simple ones. Take, for example, a case in the upper jaw where alternate teeth are missing, the remaining teeth loose, and the interspaces strongly dovetailed. Take the palatal portion of such a case first, preferably in impression composition. The central or palatal portion of the ordinary partial tray may be used for this by cutting off the rim. This will allow the labial and buccal surfaces to be exposed so that they may be adjusted if slightly forced out of position by the pressure necessary to adjust the compound, and at the same time the undercut spaces may be so treated with knife or spatula that the withdrawal of that portion of the impression is readily assured. After removing from the mouth, see that the frail portions of the impression material are removed from those parts which represent the surfaces of the teeth and gums, the object being to have strong, well-defined margins to the impression. Next, take another tray of the same kind, cut out the palatal portion, saw the handle in two lengthwise, and use the two lateral halves thus produced as trays for the balance of the work. Return the first impression to the mouth and support it while the buccal and labial portions are taken in the impression trays described above. After one side is in place cut it off squarely at the median line, and allow the opposite side to set squarely against it. Remove all three sections and adjust for running the model. The foregoing is a simple case, but it involves principles which are useful without limitation. Cannot say whether such trays are on the market or not.—*From article in Dental Brief.*

REPAIRING VULCANITE WITHOUT THE USE OF DOVETAILS OR UNDERCUTS.

DR. EBEN M. FLAGG.

This process for repairing vulcanite without the use of dovetails or undercuts by means of kerosene, was introduced by Dr. Hale, of Chicago, in 1867.

The virtue of kerosene in this work consists not only in its solvent properties (for chloroform, bisulphid of carbon, oil of lavender, and naphtha are all solvents of rubber), but in its penetrating power; indeed, it will pass through glass; thus one can appreciate how readily it is absorbed by a material as porous as vulcanite.

In making a repair, the usual method of securing a model of the fractured plate is employed. This completed, the pieces are removed from the model and the edges to be joined are filed with a coarse vulcanite file. The pieces are then replaced on the model, and the plaster along the line of fracture is coated with liquid silex, so as to prevent adhering of the wax to the model. The space between the pieces previously filed away is filled with melted paraffin and wax, put in drop by drop, and not poured from a hot spatula or forced in the space while in a plastic state.

The wax neatly carved, the plate is removed from the model and invested in the lower half of the flask, with the teeth downward; the entire plate, except where the repair is to be made, is embedded in the plaster. Where there is an undercut that would prevent the easy withdrawal of the plaster in separating the flask, it can be overcome by raising the heel higher than the front. The flask is separated and the wax thoroughly removed; this is important, as a drop of kerosene on a fresh cut or roughened surface will be almost immediately absorbed; while, on the other hand, if the vulcanite be polished or at all greasy, quite the reverse will be the case. In packing the rubber, the case is heated and the edges moistened with kerosene; the new rubber, dipped in the oil, is pressed on the moistened surface of the old rubber; thus the dissolved rubber adheres to the vulcanite; in fact, the new rubber is carried into the vulcanite, becoming an integral part of it. The case is then finished in the usual manner.—*From article in Dental Brief.*

RESTORATION OF BADLY BROKEN-DOWN ROOTS FOR RECEPTION OF CROWNS.

BY DR. J. B. TUFFTS, SAN FRANCISCO, CAL.

We often have presented to us roots which, owing to extensive decay, offer difficult problems. Upon removal of the softened portions at the cervical end, the walls are left so fragile that an attempt to band the ragged edges would result in crushing them. Besides some portion may be broken so far up under the gum that a band covering it would act as an irritant. If an attempt is made to crown the root without a band it is very apt to result in failure as the pin would work loose sooner or later in the large mass of cement. That the less space there is between the pin and its encasement the better, may be set down as an axiom. To obtain this condition a strong tube is used, into which a sufficiently strong pin will fit. It goes without saying that if the apical half of the root is also much weakened by decay, an attempt to crown will probably prove a failure. The tube I use is one sold at the dental depots for regulating purposes. It is thick and strong and of sufficient diameter for the pin usually used.

The root is carefully enlarged with a burr and the tube filed or ground to extend as near the apex as possible. With a sharp knife barb the tube and saw it off the right length. The barbs I cut in opposite directions. Those at the apical end point towards the cervix to retain the tube in the root and those at the cervical end are barbed towards the apex to assist in retaining the amalgam restoration. Fill the two ends of the tube with a film of wax to prevent the cement from entering. With a wheel burr held at an acute angle dovetail the walls of the root. The apex has previously been filled with gutta percha. Then cement the apical half of the tube in the root and build up the cervical portion with amalgam with a cement lining against the walls. The amalgam should be incorporated with the soft cement, which flowing into the dovetails, to some extent binds the walls together. No matter how thin the cervical edge of the root may be it will serve as a matrix for the amalgam. When the amalgam is hard the root can readily be trimmed for a band, as there is a solid foundation underneath the weak edges.—*From report in Pacific Dental Gazette.*

* * *

TREATMENT OF SENSITIVE DENTIN.

Dr. Oswald Rubbrecht discusses in the *Revue de Stomatologie* the treatment of sensitive dentin by means of a 50 per cent. solution of chlorhydrate of erythrophlein in eugenol. He seals this preparation in the cavity for twenty-four or forty-eight hours. Sometimes the tooth becomes slightly sensitive to a few hours after the application, but inflammation of the pulp has never been observed, not even in those cases in which the cavities were of considerable depth. The action of this preparation is constant, and great credit should be given to it, as the good results obtained with it have been in cases in which all the usual agents had been used without bringing about any favorable result.

[Some years ago Dr. L. Lewin published a paper in which he stated that erythrophlein had strong anaesthetic properties. This statement was the cause of much discussion among European investigators and its correctness was especially denied by Dr. Tweedy, of London.—Ed.]—*Cosmos.*

A METHOD OF MAKING AN ALL-PORCELAIN CROWN.

A. W. STRAIGHT.

Make a model in plaster of the tooth required, enlarge sufficiently to allow for shrinkage in baking the porcelain. From this make a mould of fusible metal in Dr. W. H. Trueman's moulding flask. Into this mould the porcelain, mixed thin, is carefully packed, a little at a time, special care being taken to thoroughly fill the cusps to avoid bubbles. At this stage a platinum pin may be inserted, or a recess made into which a pin may be cemented later. The mould is then placed in the fusible metal ladle and cautiously heated until the fusible metal melts, leaving the moulded tooth intact and sufficiently "dried out" to be handled and carved, should any changes in form be desired, and then placed in the furnace. This method offers a ready means of meeting special cases and producing artistic effects not otherwise attainable.—*From discussion in Dental Brief.*

POLISHING OF FILLINGS IN BICUSPIDS AND MOLARS.

DR. FRANK HOLLAND, ATLANTA, GA.

It is one of the most difficult things we have to do, where we have to polish fillings in molars and bicuspids, because at the neck of the tooth you have concavity mesiodistally. I do not believe that you can be positively certain that you polish the margin at the concavity of the filling, if you fill the entire cavity before you polish there. Fill it about one-third the way, and then take a chisel, or something, and thoroughly remove all excess of gold from the margin. Then take a right angle disk carrier with disk, and with an instrument press on the disk at the concavity, and let edge of disk extend up under the gum, you can polish it very nicely. You must polish the upper margins before you complete the operation to make a good filling.—*Dental World.*

AN IDEAL CROWN.

DR. H. H. JOHNSON MACON, GA.

The root is prepared by grinding it off about even with the free margin of the gum, avoiding any oval or round shape at the end and removing any bulging shape at the sides. The canals are then enlarged for the reception of platinum posts, not forgetting to ream out with a large burr the orifices into a counter-sink. A band is carefully fitted about the circumference of the root, to which a flat top is soldered, forming a cap. The flat top is placed on the root and burnished down into the counter-sunk orifices of the pin holes. The holes for the pins are now punched at the indicated spots, the pins placed in position, the whole removed and the pins soldered in place from the upper side, filling the counter-sunk holes about the pins flush with solder. The cap and pins united are now placed back on the root and a bite and impression taken, from which an articulating model is made and mounted in an articulator.

The gold cap is now on the model which represents the mouth, and the pins are left projecting above the surface of the cap. Grind these off even with the top of the cap. The tooth is now selected, and it must be a vulcanite bicuspid. Adjust this to a proper occlusion by grinding off perfectly flat at the base, allowing it to fit flat against the top of the gold cap. Now with a strip of thick tinfoil take a measure of the circumference of the bicuspid tooth and make a gold band deep enough to reach to the grinding edge on the palatal side. Trim the band down to a narrow strip on the buccal side, press the tooth into this band and burnish the edges to a perfect adjustment. While the tooth is still inside it, grind or file off the base of the band flat and even with the base of the tooth. Remove the tooth and place the band, narrow edge front, on the gold cap and solder together with a minimum amount of solder. If the band fails to fit to a proper contour on the palatal side, this deficiency may be remedied by thickening with solder at that point. After polishing the cap and band, the crown is completed by cementing the porcelain bicuspid firmly into place in the half cup which was soldered to the root cap. When this has been allowed to set hard out of the mouth it is ready to be cemented onto the root in the mouth and the job is completed.

We now have a very strong, natural looking crown, with a proper occlusion and showing a minimum amount of gold. The final result of the work is never in doubt from the beginning, as the porcelain tooth never goes into the fire and there is no checking or other failure. This description of the method may appear somewhat voluminous, but it should not deter anyone from attempting to use it, as in practice it will be found not to take longer than the making of a Richmond crown, and in many ways it is more satisfactory.—*Extract from article in Dental Digest.*

THE VALUE OF GUTTA-PERCHA IN DENTISTRY.

DR. W. F. LITCH.

I am decidedly of the opinion that many of the gutta-percha preparations have a real therapeutic value in the treatment of carious and sensitive dentin. This is, I think, markedly true of the base-plate variety, by reason of the vermilion which it contains in addition to the zinc oxid. Although vermilion is assumed to be an insoluble, and hence, therapeutically, an inert substance, it is quite among the probabilities that under the conditions of its incorporation with gutta-percha, and especially under the influence of the heat to which gutta-percha preparations are often subjected in softening them for filling purposes, some decomposition of the mercuric sulphid may occur, with the resultant release of mercury either in the metallic state, or, more probably, as an oxid. Either of these forms would be readily convertible by the oral secretions into a mercury salt having antiseptic qualities. The bluish-black discoloration so generally seen on the surface of base-plate gutta-percha when slightly overheated is unquestionably due to the development of mercury or of an oxid of mercury from the vermilion, the sulphur having been driven off by heat.

In any case it is certain that neither vermilion nor zinc oxid make good culture media for the caries fungus, and to their inhibitory influence their tooth-saving properties must, in some measure at least, be due. The negative electro-chemical relation of gutta-percha is probably also an important factor.

Vermilion also imparts to gutta-percha certain important physical properties, such as increased plasticity when heated, combined with increased toughness at ordinary temperatures. These qualities add greatly to the value of base-plate gutta-percha as a filling-material for temporary purposes, and make it especially valuable for use in molar or bicuspid proximal cavities where temporary fillings are desired, with increased space for more permanent operations. The cavities and interspace being thoroughly filled with base-plate gutta-percha, the impact of mastication will usually in a few weeks effect painlessly the separation desired. This was a detail of practice on which the late Dr. Bonwill laid much stress and from which he secured excellent results, especially in the preparation of cavities for filling with plus contours.—*Dental Brief.*

SECURING BACKINGS TO THE TEETH PREPARATORY TO SOLDERING.

DR. TOPLEY.

The pin-holes in the backing are reamed out or countersunk on both sides, slightly on the side which goes next the tooth, so as to fit over the little ridge of poreclain so often found around the pin, on the other side as deeply as may be without enlarging the diameter of the hole, using for this purpose a triangular tool with an obtuse point. The pins are riveted by splitting them with the edge of a graver, neatly making two cuts at right angles to each other across the middle of each pin, and pressing apart the four quarters into which the head of the pin is thus divided, so as to completely fill the counter-sink. Care is required to avoid making the cuts oblique and thus cutting off a portion of the pin. The cut must be vertical. This at times requires care on account of the position of the pins not being favorable to using the graver in direct line with them. The advantage of thus riveting is twofold. First, while firmly holding the backing in position it is not as rigid as a solid rivet-head, and in riveting and subsequent soldering does not impose any strain upon the tooth; secondly, it presents to the solder a perfectly clean surface of platinum, a very much larger surface than would a solid rivet-head, and causes the solder to take firm hold of the pin close to the tooth, whereas, not infrequently the solder will run around a solid head, especially if the pin is not thoroughly cleaned, leaving a portion of the length of the pin to stretch under strain until it finally breaks. The solder should take firm hold of the pin close up to the tooth.—*From article in Dental Brief.*

METHOD OF BACKING BRIDGE TEETH.

DR A. CORNISH.

To back bridge teeth where bicuspids and molars are to be replaced and strength is required, with little or no gold showing, first make the attachments.

Grind the tooth to position and bevel the cusp. Take a piece of 24-carat gold, 34-guage, and, using a sharp-pointed instrument, pierce holes for the pins of the tooth to pass through freely. Then burnish the gold to the tooth, letting it lap slightly over the cusp.

Select a suitable cusp on a die plate; swage the cusp and cut out the buccal cusp to fit closely to the backing of the tooth. Wax the cusp to the backing and try in position on the cast, making any changes to secure correct articulation.

Carefully remove the backing and cusp from the facing and invest in wet asbestos fibre, soldering with a piece of 22-carat solder.

Place the facing in position, and with a small pair of flat-nosed pliers press the gold backing close around the pins holding the tooth and backing together, making a close joint between the backing and the pins to prevent borax passing through and checking the tooth. The tooth is then ready to invest with the abutments and complete soldering. This makes a perfect bevel joint between the facing and the cusp, and also gives the required strength and articulating surface. —*Extract from Dental Brief.*

TWO PRACTICAL HINTS

BY MARY E. BLAKE, D.D.S.

There is no neater, simpler method of covering the springs or wires of regulating devices than by means of a narrow strip of rubber dam wound tightly around them, obviating what is so frequently a great source of discomfort to one's patients.

Cut a strip of proper length from the roll of rubber, puncture a small hole at one end, slip it over the handiest place (an adjacent tooth if nothing better offers), then wind tightly, so as to have the smallest bulk in the covering; cut off any remaining length, punch another hole, and slip over any convenient point. This must be removed as often as necessary, for the purpose of cleansing, but it does not become foul, and needs to be tried to be best appreciated.

To protect sharp ends of wire, the tiny rubber plugs furnished with Dunn's abscess syringe answer admirably. If they can be put in position outside of the oral cavity, so much the better, but this is not always possible.

Impale the small plug on a pair of closed pliers, spread the same by inserting a taper instrument between the sides and directly back of the rubber, continue spreading until the plug can be forced over the end of the wire, or pulled back upon it, as the case may require, then withdraw the pliers. It can be trimmed down to smaller proportions if desired, and will nicely protect the tongue, lips, or cheek.—*Dental Brief.*

A NEW METHOD OF TOOTH ATTACHMENT IN CONTINUOUS GUM AND PORCELAIN BLOCK WORK.

DR. J. W. MOFFITT, PHILADELPHIA.

The object of the method is the avoidance of the old or former style of grinding up, making backings, investing and soldering, with attendant risks and trouble. The plate is prepared and swaged in the usual way, and bite taken on plate. Model and plate are placed in articulator, and teeth ground and waxed on palatal side only. The teeth used are those made especially for this style of work, and have a perforation or hole extending from the apical end crownwards to the depth of about the neck of the tooth, the root portion being somewhat thicker than usual. The object of these holes is to receive a platinum pin for attachments to plate, similar to those formerly found in teeth known as "English tube teeth," the difference being that the hole or perforation does not extend entirely through the tooth, thus concealing the pin.

The plate being on articulator, and teeth ground and waxed on lingual side in position, each tooth is individually removed and a little warmed wax placed on plate. The tooth is then replaced and removed, the wax indicating position of hole in tooth. At this point, plate is afterwards perforated for reception of platinum pin. All the pins are inserted in these perforations, and are easily soldered with a little pure gold. The teeth are then replaced on the pins and can be moved in any way required for proper antagonism, and the wax is replaced on lingual side.

Body as required is now applied to the buccal and labial portions of plate. This body should be thin so as to run into pin holes in teeth and other crevices. The wax is then removed from the lingual portion and body applied there. The piece is now ready for first baking, which is accomplished by placing it in a tray half an inch in depth, containing enough silicate sand to support the piece during firing. The plate is afterwards finished in the ordinary way.

An impression is taken of the parts, and either continuous gum or flatback teeth ground to fit case. A plaster investment is run to labial or buccal side to retain teeth in position. Teeth are taken from model in this plaster investment, and a strong backing of iridio-platinum fitted and the piece invested and backing soldered to pins with pure gold. The pins are left straight to receive a backing if piece is intended for a metallic plate. For vulcanite work, loops and spaces should be left for attachment. The teeth are then replaced on the model, which is covered with tissue paper to prevent body from adhering to the model.—*Items of Interest.*

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AN INEXPENSIVE GOLD-PLATING OUTFIT FOR SMALL WORK.

Dissolve one fourth ounce of Potassium Cyanide in two and one half ounces of pure water in a warm bath. Also fifteen grains of Chloride of Gold in two and one half ounces of cold water. Mix the two liquids and pour into a glass or porcelain dish. Procure three pieces of insulated copper wire, each sixteen inches in length and about 22 guage. Remove two inches of the insulation on each end of the wires. Use two of these for connections with a dry battery, such as are used for hall bells and alarms. To the annode attach a piece of pure gold, and to the cathode the appliance to be plated. Immerse in the plating solution after previously cleansing in a heated solution of Caustic-Potash, followed by a wash of clear water. For this cleansing use the third wire and do not handle the appliance with the fingers. Stir the plating solution occasionally. This outfit complete can be procured for less than one dollar.—*Dental Era.*

TO POLISH REGULATING BANDS WITHOUT ALTERING THEIR SHAPE.

After a plain band has been accurately fitted to a tooth and all attachments soldered to same it is usually desirable to polish it very highly, in order that it may appear as neat and cleanly as possible. It has been customary to do this after the band has been cemented in position on the tooth. We have found it by far more practical to polish the band before cementing if *perfect* results are sought for. To accomplish this, and without altering the shape or form of these delicate bands, gently heat one corner of a piece of modeling compound of generous size, say one inch square, and mold it into the band with the least possible pressure. Then immerse in cold water to harden. It is now ready to polish, for which use a small, double row, stiff brush wheel charged with brick of tripoli. This will immediately remove all oxides and leave a dull smooth surface. Then use a soft wheel and chalk in the form of a thin paste, allowing the lathe to go at high speed.

If numerous attachments have been added and considerable oxidation took place, or if the soldering was somewhat careless, immerse the band in HCl. for a moment, wash in water, and then polish as described, thus hastening the process. We know of no other substance that will polish German silver as rapidly as brick tripoli. This is also of advantage in cleaning and polishing instruments, both operative and prosthetic, as well as impression trays.—*Dental Era.*

THE HOLLOW SADDLE BRIDGE OR DUMMY.

BY D. STIRTON OMAN, D.D.S.

I have often heard it said that it is impossible to make a hollow saddle bridge or dummy without leaving an air vent to allow for expansion of air. I will try to explain how this can be done.

First get a metal die of the ridge where the saddle is to rest; proceed in the ordinary way, using platinum for the saddle or next to the gum. Stiffen it with 22 karat solder. Stiffen the occlusal surface or cusps with 22 karat solder and long scraps of gold. This is to keep the solder from leaving the cusps. Stiffen the buccal surface the same way. Swage the lingual side, using number 32 or 34 guage, 22 karat, leaving it a little longer mesio-distally. Wire in place and solder from the inside with 18 karat solder, being careful not to let the solder leave the joints. *Do not stiffen the lingual side.* Close the mesial end, first by sawing a notch in the buccal side and fitting a piece of 30 guage as close as possible, turn over the protruding end of the lingual side, thus holding the end piece in place, drop in sufficient 18 karat solder and a little borax. Solder over a Bunsen flame. The next step will be to close the distal end; it is done the same way as the mesial. Before fastening on the end piece, put in 18 karat solder and a little borax; after it is closed, wire it, to be sure that it will not move. Now hold over Bunsen flame and see that solder comes through the joints; you will notice at this point that the lingual side is convexed; this is caused by the expansion of air. As soon as it is cold you will find the lingual side is concave; this is caused by the vacuum formed. If this does not take place, you will find there is a leak. The lingual side can be contoured by investing the piece in fire-proof material and flowing solder over it. —*Dental Headlight.*

CROWNS ON ROOTS HAVING LIVING PULPS.

DR. W. S. CAPON, PHILADELPHIA.

As I am hovering over debatable ground I may be allowed to make a statement in regard to sensitive teeth prepared for crowns. A large part of my practice of porcelain consists of using to a marked extent the porcelain jacket, which obviates the necessity of killing pulps. In many hundreds of these crowns I do not treat one per cent for any after trouble of root or portion of tooth crowned. I make this statement for the benefit of all, but especially for those dentists who kill everything in sight or near it. I know that there are men who never cover a tooth in any manner without first devitalizing. If such practice is good dentistry, then I, for one, am on the wrong track and must apologize for the terrible array of living pulps that I have proudly placed to my credit.—*Extract from Items of Interest.*

INVESTMENT MIXTURE.

The following is said to be non-shrinkable and non-crackable at high temperature:

Plaster, medium fineness..........................	5 parts.
Asbestos, grade 3, passed through a No. 12 sieve..	3 parts.

METHOD OF PRODUCING CUSPS FOR GOLD CROWNS.

DR. THOS. LARSENEUR, CHICAGO.

It often occurs that we cannot find the right sized cusps for a gold crown, those furnished by dealers being either too small or too large. In such cases, I select a plain porcelain rubber tooth which fits my gold band. I invest the tooth in Melotte's moldine, making a disk about half an inch thick and a trifle larger than the rubber ring which comes with Melotte's outfit, the cusp of the tooth only being left uncovered. The ring is then carefully pressed down on the disk and held firmly in position to prevent the escape of the metal when pouring. Fusible metal is used and poured into the ring. When cold, remove the die and you will have a perfect reproduction of the cusps without having injured the porcelain tooth. The gold cusp is then spread in the usual manner, and you will have a perfect fit for the band. This method is especially practicable when dealing with very small bicuspids and molars.—*Items of Interest.*

HOW TO SHARPEN ENGINE BURS.

W. ST. GEORGE ELLIOTT.

A suitable disk mounted in the engine, preferably an electric engine, and a watchmaker's eye glass form all the equipment necessary.

After an experience of some years using vulcanite and corundum, shellac and corundum, Arkansas stone, copper disks fed with carborundum and vaseline, none compare with what is called the Ruby Gem disk, made in Worcester, Mass. The time actually taken in sharpening a bur is less than half a minute, and you can sharpen all the burs you have used in a day and make them absolutely sharp in five or ten minutes.

The disk is about one inch in diameter, thin and cone shaped, the base of the cone toward the hand piece. These disks can be readily turned and given the proper angle at the edge, by holding against the rapidly revolving disk, a coarse carborundum wheel or broken bit. Another excellent plan is to use a steel disk, the teeth formed by rubbing on a very fine file and then hardening. This gives a sharper, cleaner blade to the bur than the ruby gem, but has the disadvantage that the bur to be sharpened must be soft, have the temper drawn, while this is not necessary with the stone disk.

The bur is held between the thumb and index finger of the left hand and slowly rotated as each blade is gone over by the rotating disk held in the right hand. I make it a rule to never use a bur the second time without sharpening.—*Extract from Items of Interest.*

FUSIBLE METAL FORMULA.

DR. H. IGEL.

The following is a fusible metal which melts below the boiling point of water, and is tougher and less liable to shrinkage or expansion than the metals now in vogue.

Fusible metal alloy for making crown, dies, etc.:

Bismuth	2 lbs.
Lead	1 "
Tin	1 "
Cadmium	2 ozs.

—*Items of Interest.*

STERILIZATION OF CARIOUS DENTINE.

J. CHOQUET, PARIS, FR.

Let us see how we are to operate in order to obtain a perfect sterilization. (1) Mechanical cleansing of the cavity; (2) dehydration, not with very hot air, but cool air, to which is added afterwards the energetic action of alcohol of different strengths; (3) dry, with hot air, and substituting a mixture of alcohol, xylol, geranium essence, and hydronaphthol for the alcohol alone. We have two ways: either the filling may be done in the same sitting, or it will only be done twenty-four or forty-eight hours after.

Case I.—The filling is done immediately when we have a rather small cavity, in which it is not possible to fix a temporary stopping.

Case II.—The filling is accomplished only after twenty-four hours' time, during which a dressing of the mixture above described is left in the cavity, after having covered it with gutta-percha or wax. We can with great advantage make a paste with hydronaphthol and put it in the bottom of the cavity, in which it is retained by the dressing moistened with the liquid, and this covered by gutta-percha.

I wish to see on a tooth that was to be extracted what would be produced. Here is a right upper lateral incisor having occasioned a great many abscesses, and moreover suffering from pyorrhœa. I entirely emptied the pulp-chamber, and after having operated as described, I left, during twenty-four hours, a wadding of the hydronaphtholized liquid, covered with a gutta-percha stopping. Acid nitrate of mercury shows us that the whole of the root is soaked through, especially the apical portions.

THE USE OF RUBBER TEETH IN BRIDGE-WORK.

DR. F. L. FOSSUME, NEW YORK.

The ordinary plain rubber bicuspid and molar as well as the small back teeth make most excellent crowns and also dummies for bridge work, in cases where these are needed posterior to the cuspid.

The rubber tooth must be, so to speak, set in gold, and this is accomplished as follows: Select suitable teeth and grind the back or palatine surface flat or nearly so, and squeeze the heads of the pins out straight. Prepare a strip of 22 karat gold, 34 guage and three eighths of an inch wide, and cut one end diagonally and punch a hole near the diagonal edge about one quarter down from the pointed corner. This hole is slipped over one of the pins and the gold bent around and over the buccal surface of the tooth until it reaches the other pin, where another hole is punched, and the strip is cut in the same way as at the other end. The gold band is now marked where it is to be cut away to expose the front of the tooth, and after this is done it is removed, and with a pair of small curved scissors the gold is scalloped as marked. Replace the gold on the tooth, bend the pins firmly together and burnish the gold in place. This is now longer than the tooth, and the projecting gold should be bent from the buccal surface toward the palatine, as this will draw it snugly around the tooth. Now trim off to its proper length and place the tooth in asbestos and solder the joints on the palatine surface and cervical edge.

The tooth is now in its setting, and can be used as a porcelain crown on a rootcap with pins, or as a dummy on a bridge.—*Items of Interest.*

CUSP RESTORATION.

DR. ELLISON HILLYER, BROOKLYN.

The necessary filling of bicuspid teeth on both the distal and mesial surfaces often renders such teeth weak under stress of mastication.When the strain results in a fracture of the tooth, it sometimes leaves the outer cusp and root in perfectly good condition. To give as strong a restoration as possible to such a fractured tooth led to the construcion of the gold tip.

Prepare the cavity in a manner similar to the preparation for a porcelain inlay, making the edges as nearly parallel with the axis of the tooth as possible. Prepare the root and fill the apex as for the insertion of any pivot.

Burnish thirty-three gauge gold plate, or even thinner, perfectly to the walls of the cavity; perforate this plate at the entrance to the root of the canal and insert the platinum pin which has the proper shape and length determined. Removing the plate and pin in correct juxtaposition, join by soldering as for the base of any gold backed porcelain crown. Replacing in the cavity, add sufficient plaster to carve, when hardened, into the proper contour and occlusion. When the latter is assured, remove and burnish pure gold, same gauge, over the plaster restoration from the gingival margin to the occlusion. Remove the plaster, wax the two gold plates in position and again try into the cavity. With this occlusion assured, take an impression with the tip in position; pour in plaster and sand; remove the wax and fill up the cavity formed by the two plates in position with gold solder. When cemented into the root, almost the entire strain in mastication comes upon the pin.

Experience in several cases has been most satisfactory, the outer cusp standing with no further fracture for a long period.—*Items of Interest.*

A METHOD OF UTILIZING A READY-MADE PORCELAIN INLAY.

DR. CHAS. MEEKER, NEWARK, N. J.

There is one method by which I am reasonably sure that any dentist, whether he owns a furnace or not, can do porcelain work, and the porcelain will stay in, provided the tooth stays in the mouth. We often find upper or lower twelve-year molars with the crown gone, and the walls on the sides good. There are a number of dental houses that manufacture a little round porcelain inlay button that has a groove in the middle. When I have a cavity such as described, my practice is to take a large bur and grind out the tooth to nearly the circumference of this inlay, remove all the decay, fit the inlay in the cavity, then mix the cement, put it in, press the inlay down, and have the teeth antagonize, and there is a very pretty filling that is apt to stay there as long as the walls of the tooth remain. I have been doing that for three or four years in every case where such a cavity occurs. I do not think it is practical in a tooth where there is an approximal cavity, because the cement will be interfered with by the secretions of the mouth.—*From report in Items of Interest.*

CUTTING DOWN TEETH.

A disk of aluminum in the ordinary disk mandrel, and dipped into carborundum dust, moistened with glycerine, will cut down a tooth very rapidly.—*Dominion D. Jour.*

GOLD REFINING.

In reducing gold fillings and waste to an ingot, first cover with nitric acid to clear from iron, silver, etc. Filter out the acid, and folding the filter paper with the fine gold, place all in the ingot. Cover with borax before melting.—*Stomatologist.*

CAMPHOR FOR ETHER COLLAPSE.

DR. SHILLING.

Hypodermic injections of camphor in larger doses than the text-books advise, are beneficial in ether collapse. Half-grain doses are very effective, but the results obtained from one-grain doses are extremely gratifying. The solution should be one part camphor to ten parts oil. As the camphor is eliminated within two hours it has no cumulative effect.—*N. Y. Medical Record.*

ANTIDOTE FOR FOMALDEHYDE.

In view of the fact that formaldehyde is coming more and more into prominence as an antiseptic and disinfectant, poisoning from it will become more frequent. An easily accessible and reliable antidote is ammonia water. It may be given in the form of ammonia water (a few drops well diluted), or the aromatic spirit, or a solution of ammonium acetate.—*Merck.*

EFFICIENT REMEDY FOR PYORRHEA.

E. A. BOGUE, NEW YORK.

An efficient agent in the treatment of pyorrhœa an aqueous solution of iodine and zinc, prepared as follows: "Zinc sulphate, as much as will dissolve in cold water. Dissolve one ounce of potassium iodide in two ounces of water, and add as much iodine in crystals as it will take up, then take equal parts of the two solutions and put them together." This is first used to relieve the pain, and then immediately proceed to remove all deposits.—*Stomatologist.*

MENTHO-PHENOL FOR TOOTHACHE.

WM. SCHAEFFER.

Mentho-phenol has remarkable analgesic effects when applied to aching pulps, whether merely irritated or partly devitalized. It is also a good antiseptic; and recommended as a mouth wash two drops to an ounce of water. It is also used with success in a 3 per cent. aqueous solution for phagedenic chancroid ulcers, mucous, patches of a syphilitic character and erysipelatous suppuration of glands, Mentho-phenol consists of one part phenol crystals and three parts menthol melted together, when it forms a pungent, aromatic, amber-colored mixture, which is not caustic, and which dissolves readily in alcohol, ether, chloroform, and most oils, and is a solvent of iodoform and aristol.—*Medical Journal.*

THE USE OF HOT CARBOLIC ACID.

BY N. S. JENKINS, D.D.S., DRESDEN.

About a fortnight ago I had an inspiration. Life had become a burden because of an overgrown, anemic, timid, nervous, hypersensitive, seventeen-year-old German-Russian boy, whose heredity and whose training had bred the conviction that if he were uncomfortable there was something radically wrong in the construction of the universe. All European practitioners are familiar with the type. When grown to manhood men of this class can storm Plevna, or go through a winter's campaign in the Balkans laughing at danger and rejoicing in hardship, but are liable to faint when baring the arm for vaccination.

The temptation to temporize with such a patient is often almost irresistible, and sometimes, indeed, temporary operations are indicated; but in this case there was no question as to what duty required. Permanent operations were necessary, but how were the cavities to be prepared?

Having selected one of the most difficult compound cavities and, with infinite precautions, prepared the edges and cut down the jagged masticating surface and dried it, as well as possible, considering that neither cold, nor warm, nor hot air could be tolerated, I suddenly resolved to try hot carbolic acid. A bit of cotton was saturated with boiling hot carbolic acid† and slowly and gently insinuated into the cavity. It worked like magic. Sensation ceased at once. In three minutes the bulk of the soft decay could be painlessly removed, and after two other applications the last vestige of diseased tissue was easily obliterated. Never had I seen an obtundent work so quickly or so effectually. The chip-blower could be used at once. Layers of softened dentin could be peeled off from over a nearly exposed pulp and a permanent filling made with unexpected ease.

Since then I have used this method in other cases, and have become convinced that in cavities in soft and immature teeth and with partially devitalized pulps which still cling to the walls of the root-canals with obstinate tenacity, and where gangrened pulps have brought teeth to the very verge of abscess, we had in hot carbolic acid a therapeutic agent of great potency. It is questionable if it will be of much value in cavities in dense teeth, or in cases of sensitive erosion, but, if my original conviction is confirmed, its combination with other agents —as for instance, cocaine,—will naturally follow, and may greatly extend its field of usefulness.—*Dental Cosmos.*

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†Dr. N. S. Jenkins in a cablegram dated February 11 says: "Twenty per cent. cocaine with hot carbolic acid seems more efficient."

THE IMPORTANCE OF THE INTERDENTAL SPACE.

BY GUY MORGAN, D.D.S., PARIS, TEX.

The interdental or interproximate space is a small V shaped space found between the necks of the teeth due to the fact that the teeth are thicker mesio-distally near the occlusal surface than at their necks. It is bounded by the proximate surfaces of adjoining teeth and the border of the septum of the alveolar process between them. This space in the normal condition is filled with an elastic, non-sensitive gum which is well supplied with blood vessels and nerves. It is from two to four times as long at eruption as in the adult. Normally it will admit of considerable pressure without pain, but once let this gum become irritated from any cause and it becomes excruciatingly painful, and bleeds profusely upon the slightest provocation. Its function is to assist in discharging the food from the inter-proximate space and to protect the peridental membrane and alveolar process. It also protects the gingival margin of a filling in this location, preventig recurrence of caries. It is a known fact that proximate fillings fail in greater proportion than any other. In fact, 10 per cent, of those put in by best operators fail. There must be a cause, so what is it? It is due, in part, no doubt, to the difficulty of inserting, also to the improper preparation of the cavity, but since some of our best operators fail it must be from some other cause, and that is, I say, the failure to realize the importance of maintaining a normal interdental space. Some dentists never polish their fillings (especially amalgam fillings), enough in this locality, but leave rough, over-hanging edges pressing down between the teeth against the gum and alveolar process causing them to be absorbed, and consequently a pocket is formed.

The gum first becomes red, congested and swollen, after which it recedes and leaves a pocket into which food and other debris is packed where it decomposes, forming offensive odors and a bad taste, besides forming acids which dissolve the lime salts of the teeth, and we have recurrence of decay. Another case in which interdental space is neglected is where the teeth have fallen forward or backward—as the case may be—owing to the loss of tooth-substance on a proximate surface causing the adjoining tooth to be pressed into it, thereby completely strangling out the interproximate gum. It becomes swollen, labially and lingually, whereas directly between the teeth it is absorbed, hence you have a pocket formed with raised edges, and it is sure to catch food. How are we to overcome this defect? To fill them in this position would not do it. First, be sure to make sufficient separation to enable you to restore the original mesio-distal diameter of the tooth. If this is done it will relieve the pressure on the gum and allow it to resume its normal condition. If it fails to fill this space it can easily be made to do so by stimulation brought about by irritation, for who of us has not seen a cavity completely filled with gum, where the gum was hanging over the sharp edge of the cavity so as to be constantly irritated? Another way to prevent recurrence of caries in this locality is what we term "extension for prevention." There is between the teeth an area of uncleanliness which is in reality the point of contact. Now the idea is to cut away the walls of your cavity until no margin of your filling will come within this area. The metal can resist the action of the acids much better than the tooth-substance, hence your filling is not so apt to be undermined. The rule for this extension in biscupids and molars, is to cut away lingually until looking from a line drawn beween the central incisors you can see the lingual wall from the occlusal surface to the gingival line and always extend the cavity underneath the free margain of the gum to get its protection. Another important feature is to produce the proper contour and contact. The contour should be as near as possible that of the original tooth before the cavity appeared. The contact should be as near as possible like the contact of two marbles, merely a point and not a broad, flat surface. The contact point should be near the center of the tooth. As you will notice the main object all the way through is to keep the interdental space clean, or self-cleaning, so that all these bad results and conditions will be avoided.—*From article in Texas Dental Journal.*

A MEANS OF DIMINISHING THE TOXIC ACTION OF COCAINE WHEN USED AS A LOCAL ANESTHETIC.

Cocaine cannot be employed in a certain number of surgical cases because of its influence as a toxic agent upon the general economy after it is absorbed into the circulation. If used freely, it must be in very dilute solutions, and then sometimes fails to produce the required anesthesia. Some experiments which have recently been made by Hoelscher have shown that the danger of poisoning from cocaine when injected into a limb is greatly increased if the Esmarch bandage, which controls the hemorrhage. is removed immediately after the operation. If, on the other hand, this bandage is allowed to remain upon the limb for some little time, and then is removed, toxic symptoms do not occur. This failure in the development of toxemia depends not upon the fact that the cocaine leaks out of the stump through the wound, but more upon the influence which is exercised upon this vegetable alkaloid by the tissues themselves.

Within the last few years a number of experiments have been made upon animals, with different objects in view, which nevertheless support Hoelscher's results. Thus, Von Czyhlarz and Donath have concluded as the result of their experiments that the tissues of the body have the power of rendering a poison, notably strychnine, inactive by causing its fixation in the tissues or perhaps by destroying it locally, provided its rapid absorption and transference elsewhere is not speedily accomplished. It is true that these conclusions have been combated by Meltzer and Langmann, who think that the prolonged application of the ligature produces changes in the tissues which prevent them from absorbing the drug, but certain it is that other experiments have shown that the tissues do possess a destructive power over vegetable alkaloids.

A RAPID METHOD OF PRODUCING REGULATING PLATES OR PARTIAL DENTURES IN HARD RUBBER.

GEO. BRUNTON, ENG.

The plaster model must be dry. The surface to be covered by the plate is first painted with a solution of rubber in chloroform (a good rubber for this purpose is the quick vulcanizing rubber). The chloroform is then allowed to evaporate, which will take place in a few minutes. A piece of quick vulcanizing base-plate rubber cut somewhat near the size required is warmed and pressed down on the painted surface of the model, taking care that it comes in close contact with every part. The superfluous edges are then trimmed off and the regulating appliances put in position, or the teeth are mounted by warming them and pressing them into their places. At this stage of the operation the rubber is covered with tin foil and placed in a metal box of any kind large enough to hold the model, which is then surrounded with French chalk (steatite) which has to be packed lightly so as not to disturb the teeth; the lid is fastened down with wire or cord and the piece is then vulcanized in the ordinary way. The advantages of this method are the saving of time, no investment in plaster of Paris or a flask being necessary, and the production of a superior quality of rubber.—*Journal Brit. Dent. Association.*

TREATMENT OF THIRD MOLARS.

Dr. S. W. Foster states that he does not resort to the immediate use of the forceps in extracting impacted third molars. He first uses a fissure bur, in the engine, to cut away the process over the tooth, then with the forceps the tooth is removed with greater ease and with less laceration of tissue than follows the usual methods of removal.

OBTUNDENTS.

DR. N. H. KEYSER.

Alcohol, 1 oz.; chloroform, 2 oz.; ether, 2 dr.; gum camphor, 1 dr., I have found very effective as an obtundent. Thorough dryness, such as can only be obtained with the rubber dam, is a very necessary preparation for the comfortable excavation of a sensitive cavity. Upon the hard tissues I have had very little success with any form of cocaine. Absolute alcohol I have found very efficient, but have trouble in obtaining it and in keeping it "absolute." I think the most effective obtundent is oil of mustard or oil of horseradish; they are practically identical. The intense penetrating odor is a decided objection; it is also strongly escharotic, and not safe unless the dam is used.—*Dental Brief.*

A NEW VACUUM CHAMBER.

BY DR. J. A. JOHNSON, SMYRNA, DEL.

Granting that a perfect impression of the mouth has been obtained, using plaster not too thickly mixed, and the palate carefully cleansed with napkin before introducing the impression tray, we come to the pouring of the impression; and how many good impressions are ruined at this point by the use of varnish entirely too thick, and in addition coated with thick oil or soap suds? The thinner the varnish, the better, and soapy water rinsed off under water cock or the use of porpoise oil will not materially injure the plaster cast which we are about to obtain.

After setting up on the articulator, the model is scraped or lined as the case may require; then the regular vacuum chamber form is placed in position, and just before packing the case around this is laid a narrow (about one-eighth inch) rim of flexible or palate rubber, and over all is laid a piece of thin tinfoil neatly shaped to come flush to the outer edge of the flexible rubber. The packing of the case is now finished in the ordinary manner, and after vulcanization and removal of the metal chamber and tinfoil form, the palatal surface of the case will have the appearance of the ordinary case excepting that the margin of the vacuum chamber will be of the flexible rubber and will present a free edge or lip, of the width of about one-eighth of an inch.

On the flexibility of this elastic rim lies the secret of an unbreakable suction, for it will yield to atmospheric pressure when the plate is under pressure on the opposite side, and thus prevent the ingress of air on the side of the plate not in perfect apposition to the mucous surface.

I have given this new form of vacuum chamber a severe trial in a number of difficult cases wherein I had completely exhausted my resources in a vain endeavor to construct upper dentures possessing requisite adhesion, and in each case in which I have used it, the results have been highly satisfactory to both the patient and myself.

Another valuable feature of this form of vacuum chamber is the absence of irritation to tender palates, a matter of no small consideration in many cases.—*Extract from article in Items of Interest.*

SUGGESTIONS

ANTRAL MEDICATION.—A. E. OSBURN.—I believe the best way to introduce remedies into the antrum is by the use of the nebulizer, which converts them into a spray and carries them to all parts of the cavity. It is very efficient.—*Cosmos.*

EXTRACTION DETRIMENTAL.—H. A. PULLEN.—Extraction in either deciduous or permanent set destroys the wedging influence exerted by each tooth, and consequently there will be no carrying forward of the teeth and process, thus creating all the evil results arising from unusual development of the two arches.—*Cosmos.*

PUMICE CARRIER.—W. A. MILLS.—Rubber bands with pulverized pumice-stone and full strength dioxogen are used for cleaning and polishing the approximal surfaces when they cannot otherwise be reached.—*Cosmos.*

BRIDGE REPAIR WITHOUT REMOVAL.—DR. UNDERWOOD.—Grind slots in backing for reception of pins of new facing, which is then backed up with pure gold engaging end of pins and covering slots and lingual side of bridge or crown, after which it may be cemented in place, completing the operation.—*Review.*

COLORING ARSENICAL PASTE.—G. V. BLACK.—The addition of five per cent of lampblack will be found an advantage. It colors the paste and makes it easier to detect any particle that may have gotten outside the cavity on the tooth or the rubber dam. The lampblack does not in any way interefere with the efficacy of the paste.—*Review.*

To Concentrate Peroxid of Hydrogen.—C. A. Meeker.—Place twenty-five per cent etherial solution in small dish, cover with mica, hold over spirit lamp and distill. This is much stronger than twenty-five per cent solutions and more effective in bleaching discolored teeth.

Effective Tooth Bleaching.—C. S. Stockton.—I have found that sealing up the pyrozone in the cavity gives the best results. Let it go for three or four days and you will be surprised at the color of the tooth. Let it remain thoroughly sealed with hard gutta percha and it is the best way I know of for bleaching teeth.—*Items of Interest.*

Odontalgia Treatment.—J. R. Hardy.—Of late I have been using antikamnia and codein tablets in cases of severe odontalgia, and they have relieved promptly. They were effectual in cases which nothing else would relieve. A crushed antikamnia tablet placed in the socket after extraction and covered with a bit of cotton, eased the pain wonderfully.—*Dental Brief.*

Borax Flux.—J. B. Usher.—In soldering crowns I use a saturated aqueous solution of borax made by filling a bottle with water and dropping into it a lump of borax and boiling. In using it the piece to be soldered is simply moistened where the solder is wanted to flow, and the solder will run like a flash, much easier than when the borax powder is used.—*Cosmos.*

An Antiseptic Cavity Varnish is prepared by this formula:

℞	Select gum copal	oz. one-half
	Ether	oz. one

dissolve and filter through paper and add

Hydronaphtol	gr. 50

and add enough ether to make the whole measure one ounce. Keep in well stoppered bottles.—*Dental Era.*

A Varnish for Plaster-Models which is superior to shellac or sandarac varnish is prepared as follows: Gum sandarac, two ounces; gum mastic, one ounce; Venice turpentine, one-half ounce; alcohol, five ounces. Dissolve. The varnish is colorless, elastic and leaves a fine glossy surface. Any alcohol-soluble anilin dye can be added to give the desired color.—*Dental Era.*

Removing Broaches.—Should you break a barbed broach off in the canal, you will find that a good method of removal is to saturate the cavity with a 25 per cent solution of pyrozone. In a difficult case, saturate a pledget of cotton with the pyrozone and introduce it into the cavity, sealing the same with gutta-percha or sandarac, and leave it in the tooth for upward of three or four days. When the patient returns, take out the application, and the broken broach will be readily removed, since the pyrozone has completely rusted and almost eaten it up.—*Journ. Brit. Dental Association.*

EDITORIAL

THE DESIGN OF THE DENTAL SUMMARY.

The change of name of this journal necessitates somewhat a change in the reading matter. The design is to present the actual thought in a concise form without unnecessary embellishment. Apologies, general talks, congratulatory remarks, etc., are well enough in their place, but are of little interest to the general reader, especially the busy dentist who is seeking knowledge of things he can appropriate to his own use in his daily practice. He wants to get at the marrow at once. He wants the shell removed so that he can begin with the meat. This saves him time, patience, and sometimes profanity.

We have noticed in dental journals articles containing one or two pages of prefatory remarks while the real thought the dentist desired to express covered scarce half a page. It is our design to crack the nuts for our readers, throw away the shells of superfluous verbiage and lay bare the meat, and to present material of a sort that can be put into daily practice—the so-called practical articles.

We do not in any way depreciate the scientific, for it is as essential to successful dentistry as the practical, but as the professions tend to specialties so also do professional journals, and we shall give preference to matters of practical value. We shall aim, so far as possible, to present articles of moderate length, but concise in statement. Such material as will be of great value to every dental practitioner and aid him in his daily practice. Aside from valuable original contributions we shall give our readers the benefit of the best practical articles published in all other dental journals throughout the world—everything presented as concisely as possible and not destroy the essential features.

This, we say, is our design; how well we shall be able to carry it out remains for you to judge.

SYMPATHY.

We appreciate fully the sympathy expressed by brother editors for the JOURNAL'S loss, by fire, in January, and the many kind words for the continued success of the DENTAL SUMMARY.

These kind expressions touch the heart and make one feel that he has friends trusty and true.

Editor W. F. Litch, in the *Dental Brief*, writes:

> "The January number of the OHIO DENTAL JOURNAL having been entirely destroyed by fire, the publishers decided that in reproducing the edition the journal should begin the new year with a new name, and it now appears as the DENTAL SUMMARY, and under this title will henceforth be published. A new cover, attractive both in design and color, still further distinguishes the present from former issues.
>
> "Under the able editorship of Dr. Bethel there can be no question that the high standard of excellence of the journal will be maintained. The *Dental Brief* extends best wishes for the continued prosperity of the DENTAL SUMMARY."

Brother C. N. Johnson, editor *Dental Review*, says:

> "The OHIO DENTAL JOURNAL is no more. Peace to its ashes—it was burned January 4, 1902. But wait! Do not weep over it. Like a properly constituted phœnix it has risen from its ashes, more lusty than ever, only under another name. It has outgrown the bounds of a local magazine, and is now called the DENTAL SUMMARY. It has the same publisher and the same editor, and it is still published in Ohio, which is all we need say in the way of endorsement. Condolences on the fire—congratulations on the resurrection. Long may the DENTAL SUMMARY live!"

Editor W. H. Weaver, of the *Dental World*, states:

> "We regret to learn of the misfortune of the OHIO DENTAL JOURNAL. On January 4th, the January edition, cuts, plates, etc., were consumed by fire. In constructing a new design a new name was selected and this valuable journal will now be published as the DENTAL SUMMARY."

Editors Kennerly & Prinz, of the *Dental Era,* write:

> "The Dental Summary is the new name given to the Ohio Dental Journal by its publishers, the Ransom & Randolph Co., Toledo, O. The entire January edition of the journal was consumed by fire on the night of January 4th, 1902, making it necessary to reproduce new plates and a new cover design. The publishers thought best to change the name 'for the reason that the journal has outgrown the bounds of a local magazine.'"

We sincerely thank all our friends for their kind words of sympathy, and while we are ever ready to "do likewise," we hope there may never be occasion for it.

A CRITICISM.

Dr. N. S. Hoff, editor of the *Dental Register,* writes of our journal in a manner thus:

> "We have just learned that the January issue of the Ohio Dental Journal was destroyed by fire, and it will have to be entirely reproduced. We are also informed that this journal, for the second time in its history, will change its name to the Dental Summary. We presume the editor and publishers do this advisedly, but we can not but think it a mistake. The old name of Ohio Journal of Dental Science had a greater significance than the present one, and the change now proposed seems like a retrograde movement, as it doubtless contemplates epitomized reprints, which are generally lacking in value, to say nothing of the loss of personality of contributors, and so of interest."

This may not be flavored with "sour grapes," but Dr. Hoff's journal, you perhaps know, is also published in Ohio. We shall try, however, to allay Dr. Hoff's fears of retrogression by proving to him that, to fully meet the needs of the dental practitioner, the quality and quantity of our reading matter will at least compare favorably with the other first-class dental publications.

CORRESPONDENCE

INFORMATION WANTED.

Editor Dental Summary:

Being a subscriber of your valuable journal I feel that I ought to have the privilege of asking questions of my dental brothers through its columns. Hence I write the following for publication and answer:

Mr. C. came to my office about January 29th to have me see what I could do to his teeth. I found the upper left second bicuspid decayed just below the gum on all sides except the buccal surface, which enamel was still intact. The tooth had never ached. I think I managed to get into the pulp cavity (not the canals) and think I found it empty. I did not find the palatal canal, but found what I think is the buccal canal, but when I attempt to put anything in it I hardly get started until he complains that "he cannot stand *that.*" Now, what is *that?* I have not drilled through the walls of the canal. I sealed Blacks 1, 2, 3 mixture up in it and dismissed him for two days. It did not hurt him during that time, I think, but was the same when I opened it up the second day. I repeated the dose and three days afterwards found it the same. Then I put in Kellogg's nerve mummifying paste without mercury and left it sealed for two days. Then I found it the same, except perhaps a little more pus. I returned to Black's 1, 2, 3 mixture, of which I put in and sealed both on the second and fourth days, but still with the same result. I then tried Dr. Lutz' pulp canal treatment, which I think is mostly iodine softened with oil of cloves. Three days following this was repeated. The next night he aroused me to relieve him of aching in that tooth. I removed the filling and he got relief, but cannot suck it because that makes it ache. I returned to Black's 1, 2, 3 mixture and sealed it again, but without permanent relief. What is it, and what am I to do? Can it be possible that there is a portion of a tooth pulp in that canal alive with the portion of the pulp in the pulp cavity dead, and this exposed for a long time? If so, will it be safe for me to apply arsenic and morphine *aa* softened with creosote, left sealed in it a day? If not, what shall I do? Please tell me all about it and how is the best way to treat such cases where the patients insist on having them treated? I have been studying and practicing dentistry since March 1st, 1885, but I am not satisfied with treating such cases. Any information received via THE DENTAL SUMMARY or by letter will be appreciated.

Also I would like to know what is best to stop sloughing of the gums after the use of a local anesthetic containing cocaine, morphine and atropin.

DR. W. E. STEWART,
No. 231 Main Street, Morgantown, W. Va.

SOCIETY

ILLINOIS DENTAL SOCIETY.

COMMITTEE ON ART AND INVENTION.

The Committee on Art and Invention of the Illinois State Dental Society hereby invites and solicits a contribution of anything new in the way of appliances and inventions, designed during the past year, which will be of interest to the profession in general.

Everything submitted should be sent directly to the undersigned, with detailed description of its use and application, by April 1st, in order that it may receive proper classification and consideration in the presentation of the annual report at the coming meeting in Springfield, May 13-16, 1902.

The committee will care for and return each article submitted, but reserves the right to reject any which in their opinion may not be of practical value.

HART J. GOSLEE, Chairman,
580 Madison st., Chicago, Ill.

THE EASTERN INDIANA DENTAL ASSOCIATION.

This society meets at Shelbyville, Ind., May 7-8, 1902. President, Dr. J. R. Clayton, Shelbyville, Ind.; Vice-President, Dr. H. C. Sexton, Shelbyville, Ind.; Secretary and Treasurer, Dr. A. T. White, New Castle, Ind.; Executive Committee, Dr. W. E. Blackburn, Shelbyville, Ind.; Dr. J. H. Morrison, Connersville; Dr. N. W. Hiatt, Marion, Ind.

AFTERMATH

PERSONAL AND MISCELLANY.

Army Recruits and Artificial Teeth.—We learn that a War Office instruction just issued to recruiting officers says that army recruits wearing artificial teeth which are well fitted in every respect for purposes of mastication are not to be rejected on enlistment on account of defective dentition.—*Brit. Journal.*

A Faulty Piece of Cable removed from the Eastern Extension Telegraph Company's Sydney-Nelson section at as great a depth as 330 fathoms was found to contain a tooth firmly fixed in the core or interior portion of the cable containing the conductor, although it was protected by the usual sheathing of thick iron wires and outer coverings.

An expert examination of the tooth proved it to belong undoubtedly to a shark, the exact variety of which could not be identified. Five species are known to exist at a depth of 300 fathoms, and one as deep as 500 fathoms.—*Record.*

Insect Repellants.—In some districts dentists and their patients are troubled with flies, mosquitoes, etc. It is claimed that no mosquito can endure the odor of the oils of citronella or of pennyroyal, and that the odor of oil of mint repels insects, and also that the odor of thyme attracts them. It is also said that a box of mignonette and geraniums in blossom in a window are as effectual in barring the entrance of a plague of flies as a wire screen, and far pleasanter to the eye. Flies have also, it is said, a decided aversion to the oil of bay leaves, and a few drops in a dish placed near the window will prevent their unwelcome visits.—*Stomatologist.*

Dr. D. D. Smith, of Philadelphia, by invitation, has been giving special lectures on "Prophylaxis" to dental societies in Pittsburg, Cincinnati and other cities the past month.

Dr. Harold Clapp, Utica, N. Y., has been appointed dentist to the State Hospital for Insane, said to be the largest institution of the kind in the state.

Dental Board Sustained. The supreme court entirely vindicated the action of the State Board of Dental Examiners with reference to the dental department of the Wisconsin College of Physicians and Surgeons and formally established the right of the board to fix its own standard. The board declared that the college was not a reputable school and therefore they could not give licenses to its graduates without an examination. Mandamus proceedings were begun by Dr. W. L. Coffey, a graduate of the school. He claimed in effect that there was a malicious conspiracy on the part of the members of the board of examiners against the college.

The case was tried before Judge Elliott in the Circuit Court for Milwaukee county, who held that the board had the full right to establish a reasonable standard and that when such standard was established the court had no right to interfere. But he also held, as a matter of fact that the board had erred in not going to the school in a body and making the examination immediately before the decision that the college was not up to the standard. The Supreme Court in effect holds that the lower court had no right to question the manner of the board's determining the standard. In closing his opinion Justice Marshall says:

With the question of whether the trial court determine correctly, upon the evidence before it, the question of the reputability of the Wisconsin college, we have no concern since as indicated the whole proceeding as a trial de novo was erroneous.

The trial court should have viewed the decision of the board from their standpoint and not from its original investigation on the subject. We are unable to perceive that the board exceeded its discretionary power or so failed to exercise such power as to be guilty of the abuse thereof.—*Milwaukee Journal.*

A New Novel by John Uri Lloyd: Prof. Lloyd, so well known in the medical and dental professions, is fast achieving fame as a novelist. His "Stringtown on the Pike," reached a large sale, but his latest work, "Warwick of the Knobs," bids fair to eclipse it. The scene of the story is laid at the time of the civil war in that rugged part of Kentucky which has a history of its own, where one would naturally look for such characters as Warwick and Joshua. The book is extremely interesting from beginning to end and gives one a true idea of life in that section of the country not so vividly pictured anywhere else.—Dodd, Mead & Co., Pub. Price $1.50.

"The Chiefs of Cambria" is another important book just issued. It is a Welsh tale of the eleventh century, and its author, Morgan P. Jones, has so skillfully combined historical facts and customs of the times with fiction and romance that the story is a fascinating one. It is full of action and intricate situations, but everywhere elevating in character. The book certainly merits a large sale. The Abbey Press, Publishers.

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Subscriptions and advertisements, send to the publishers.

The Ransom & Randolph Co., Toledo, Ohio

THE DENTAL SUMMARY

VOL. XXII MAY, 1902 No. 5

CONTRIBUTIONS.

CONSERVATISM IN ORAL SURGERY.

BY TRUMAN W. BROPHY, M.D., D.D.S., CHICAGO, ILL.

In treating this subject I do not attempt to enter into detail, but as briefly as possible call attention to methods of procedure which have proven efficient and valuable.

Surgery of the oral cavity and its adjacent parts, including facial deformities, will ever be of great interest to the surgeon, as it not only requires great skill of the diagnostician, but delicacy in manipulation is demanded in order to obtain good results and avoid conspicuous cicatrices and other deformities of the mouth and face.

It is customary for the general practitioner of surgery, when operating on the maxillary bone or in the performance of operations within the mouth, when of considerable magnitude, to make external incisions to gain access to, and a full view of, the field of operation. I hold that these external incisions, followed as they are by the formation of scars, are in a large majority of the cases in which they are made wholly unnecessary.

For example, a patient suffering from persistent neuralgia of the second or third division of the fifth pair of nerves, having undergone medication extending over a period of many months with only temporary relief, is taken by his physician to a surgeon for diagnosis and treatment. The surgeon decides that a nerve lesion exists and that an operation is required by which to cure the patient. The patient is prepared, the operation is proceeded with, and an external incision is made in accordance with the location of the lesion. If of the inferior nerve the incision is made along the border of the jaw, the tissues are reflected up so as to expose the external surface of the inferior maxillary bone, a hammer, mallet and chisel are made use of. the bone is chiselled away so as to expose the inferior dental canal, and the nerve removed. A saw is sometimes employed instead of a chisel for the purpose of removing the external layer of bone covering the canal. The wound is closed by suturing and the patient is cared for antiseptically until the wound heals.

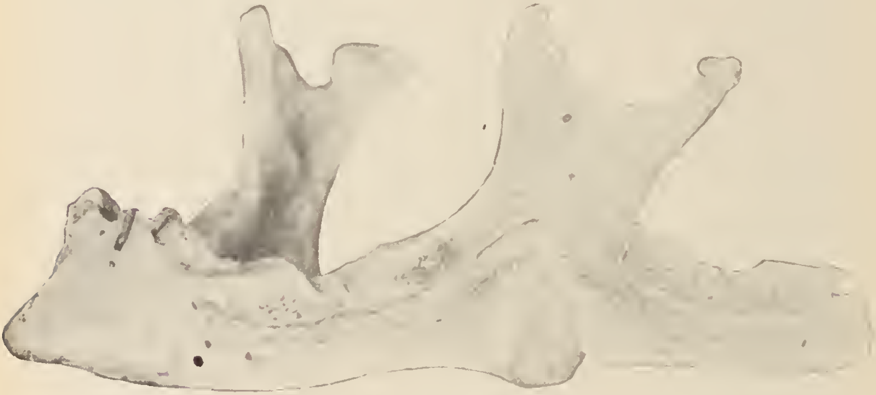

FIGURE I.
Inferior maxilla, inferior dental canal exposed.

These external incisions are wholly unnecessary as the operation may be successfully performed within the mouth, proceeding as follows:

A small incision should be made downward from the mental foramen, so that the canal may be entered with a silver probe (Fig. I), then a drill after the form of Gates' dental root-canal

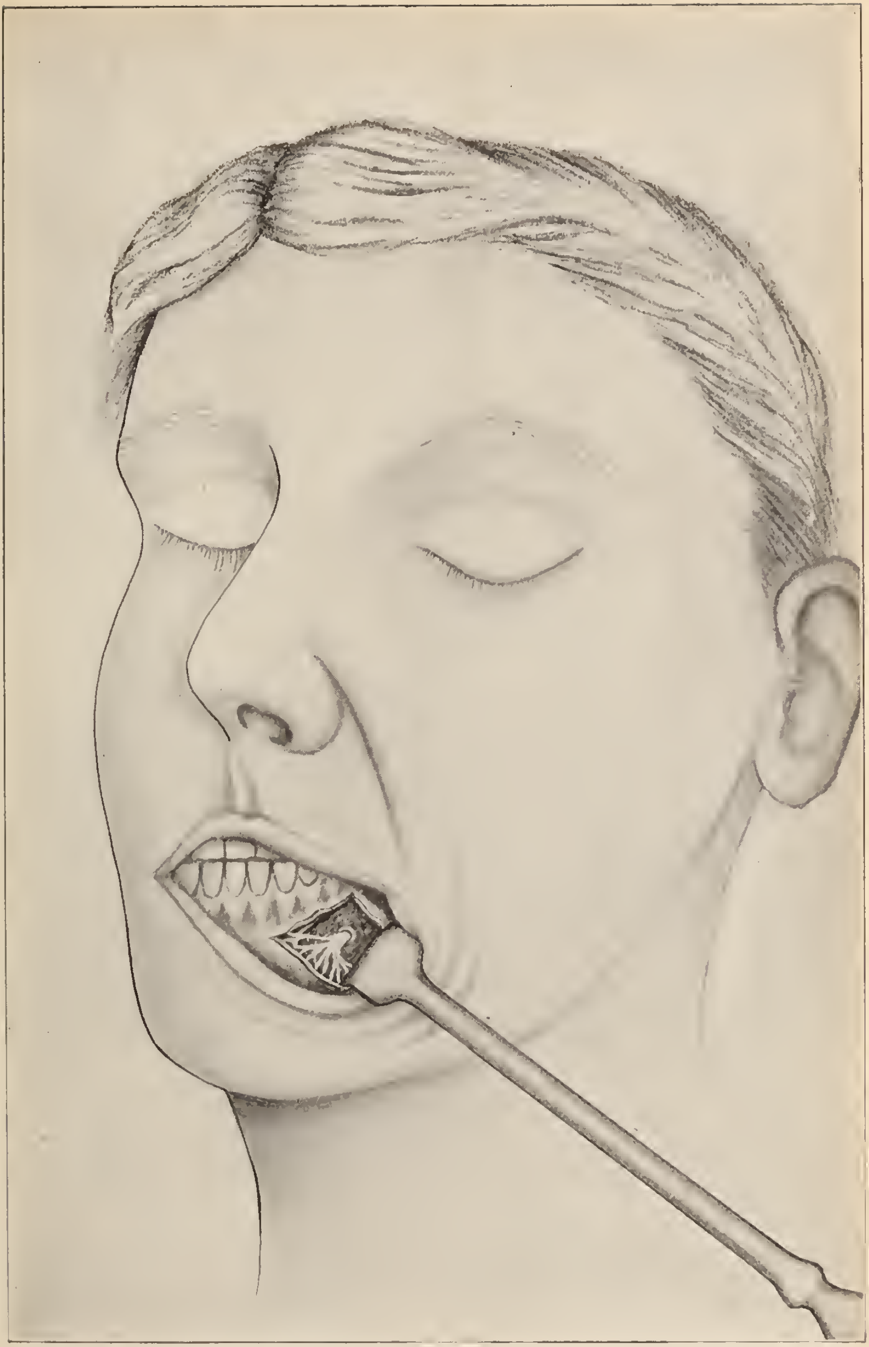

FIGURE II.
Showing the inferior dental nerve as it emerges from the mental foramen.

drill, exaggerated in size, may be carried into the canal and the contents thoroughly removed (Fig. II).

In order that the nerve may not redevelop as it is inclined to do, the canal may be drilled out so as to freshen the surface of the bone, thus causing an exudate to take place from the freshened bony surface, and the consequent filling of the canal with bony tissue. Experience has taught us, however, that the canal does not always fill with osseous tissue and the nerves will be reproduced in certain cases.

I am of the opinion that there is no more reason for making an external incision for the removal of the inferior dental nerve within the substance of the maxillary bone than there would be to make an external incision through the cheek to gain access to the third molar tooth for the purpose of entering the pulp chamber and removing the pulp therein.

Abnormal conditions of the second division of the fifth pair of nerves, or the infra-orbital nerve, frequently require surgical operation for their cure. It has been customary in performing these operations to make external incisions for the purpose of entering the infra-orbital foramen and making exsections of the nerve. I have found that equally good results may be obtained by raising the cheek and making an incision over the cuspid tooth (Fig. III), dissecting up the soft parts, seizing the nerve with a tenaculum as it makes its exit from the infra-orbital foramen, carefully dissecting out its branches distributed to the cheek, then increasing the size of the infra-orbital canal by means of a drill, seizing the nerve, drawing it forward, and dividing it, will accomplish the same end that may be gained by making an external incision. (Fig. IV.)

The following letter written by that distinguished surgeon, Professor Edmund Andrews, A.M., M.D., LL.D., of the Northwestern University Medical School, recently received by me, enters into an explanation why pain, though completely arrested by operation, may recur within a period of two years, and how finally it may be cured:

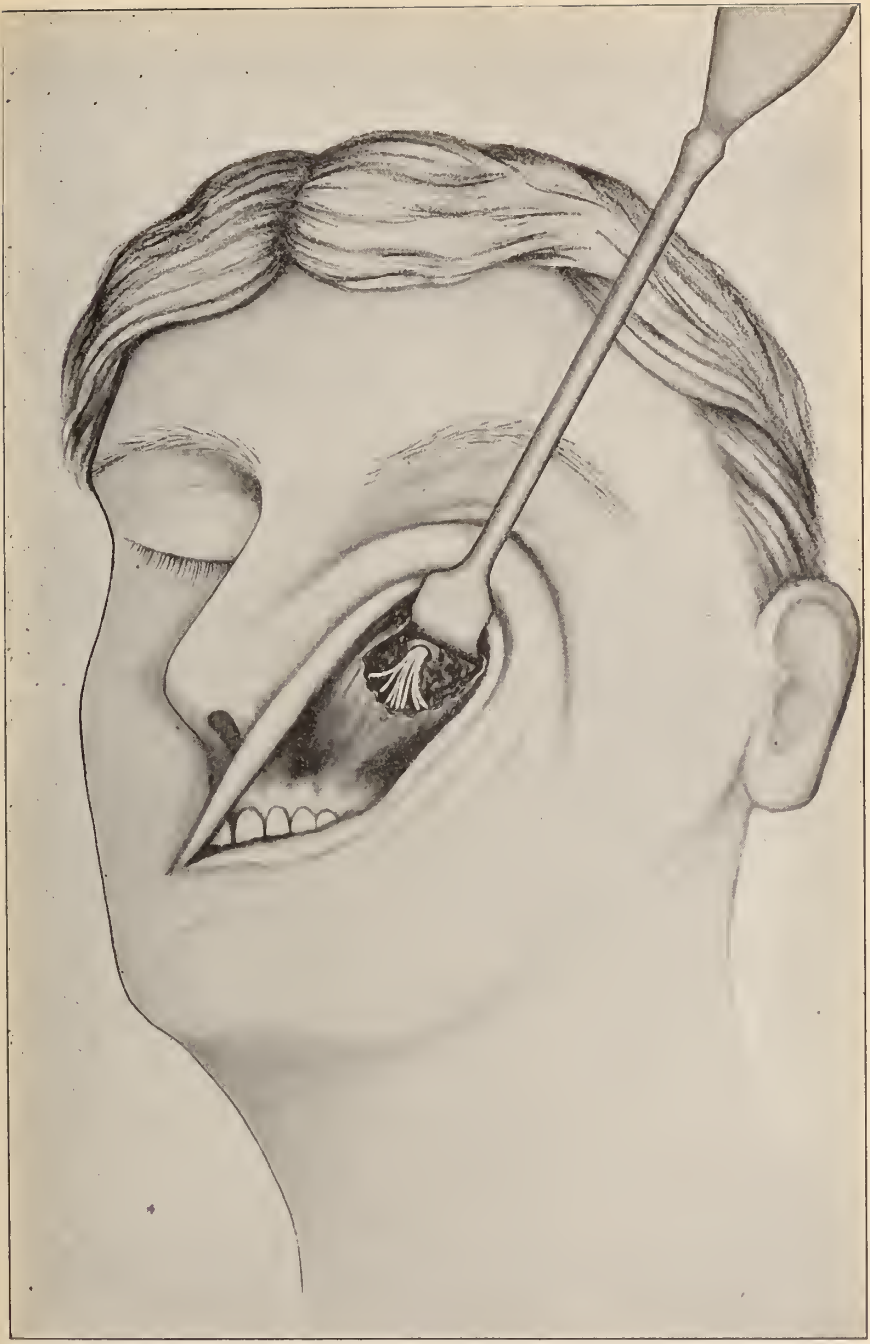

FIGURE III.

Infraorbital foramen exposed by retracting the cheek. The infraorbital nerve in view.

Chicago, March 4th, 1902.

PROF. TRUMAN W. BROPHY,

My Dear Sir:—In reading your interesting clinic on Trigeminal Neuralgia, I am not clear that I understand fully the late doctrine about the innervation of the teeth. The opinion given in your lecture is that the innervation of the tooth is direct from a plexus surrounding the root, and not from a dental branch from the fifth pair. Do the supporters of this opinion hold that the plexus derives its sensation from a connection with the fifth pair, or is it believed to be an offshoot from the sympathetic system, like the principal nerves of the digestive system, etc.?

What is the accepted opinion about this?

Yours most truly,

EDMUND ANDREWS.

P. S.—I have found much to my surprise that a case could for a year or two, by an incision or avulsion after an operation through the ramus, yet if it relapses, the cure can be repeated by opening in the same spot, detaching the circular cicatrix, closing the trephine hole by cutting around its edges, and twisting it forcibly out, though no trace of the old stump may be found. I have operated several times in the same spot with a year or two of success each time. I have found the plan to be of considerable value in practice, and weak, old patients seem to feel no shock, probably because the incisions are done in cicatrical tissue, which has very little vascularity, or nerve supply. I don't see any reason in it unless this may be true. The cicatrix may be supposed to be attached in its deeper apex to the stump of the nerve, and in twisting it out it may affect a nerve stretching, or, in other words, a hive of operation on the stump.

I have excised the Gasserian ganglion five times, but other surgeons as well as myself think less favorably of it than formerly. This matter of secondary operations by twisting out the old cicatrices is of importance, though it looks at first glance unreasonable. Working in the old cicatrix is eminently free from shock and hemorrhage. Relapses after either primary or secondary operations are very generally, or at least often much milder than the original disease; some are permanent cures. E. A.

In answer to Professor Andrews' question as to how the tooth pulp receives its nerve supply and nutrition, I have stated, that the nerve supply is from the fifth pair, although a nerve branch does not proceed directly from the trunk into the tooth canal, as works on Anatomy teach, but the branches given off from the trunk are distributed to the bony septum between the roots and minute branches are distributed to the pericimentum and enter the foramen to be distributed to the pulp.

Operations for the removal of tumors of the oral cavity of various kinds may also be performed without external incisions. The tumor known under the name of epulis, occurring as it

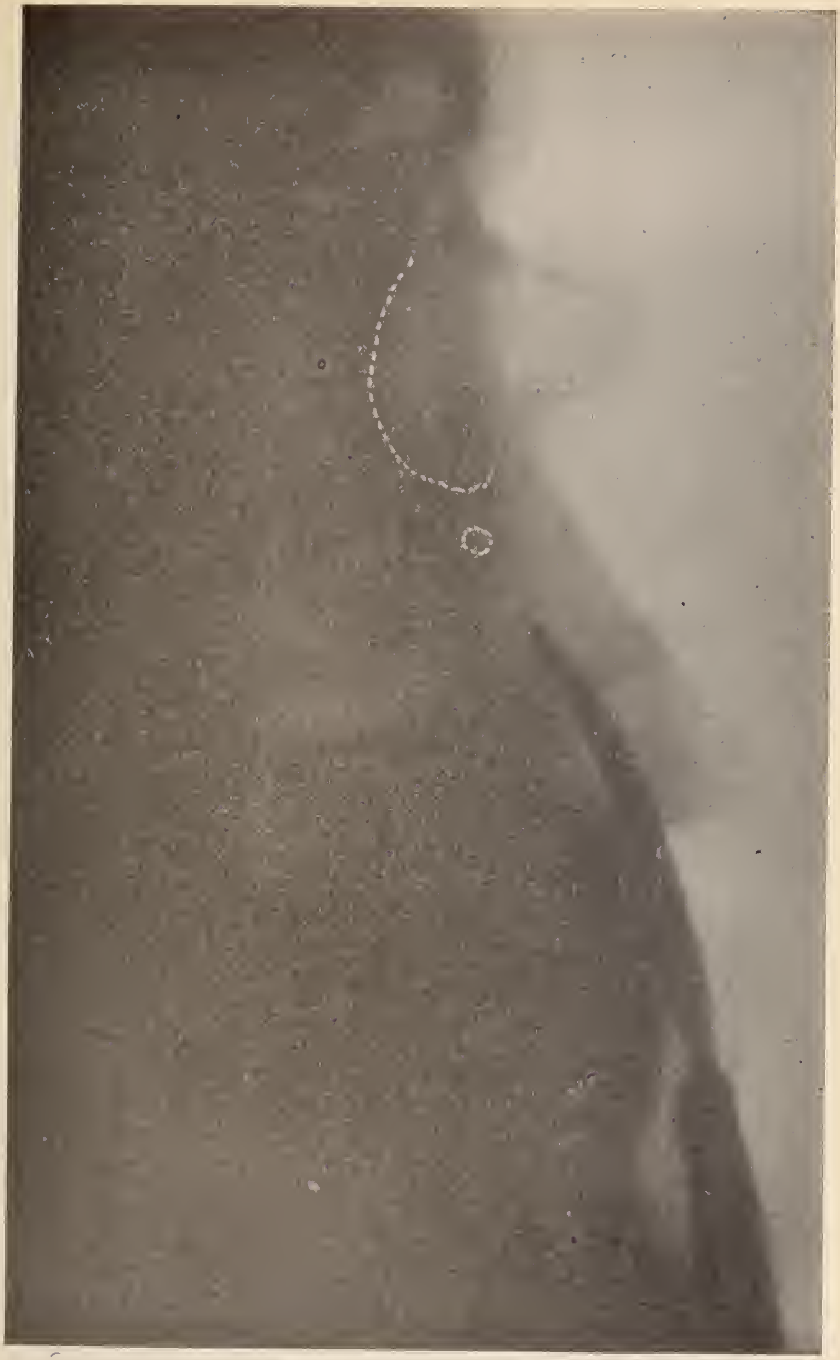

FIG. IV.
X-Ray picture showing point for incision.

does about the margin of the gum, but having its origin in the periosteum, growing sometimes to an enormous size, may be removed in all cases within the mouth without external incisions.

The method of procedure in removing tumors of the superior maxillary bones has been to make an incision usually through the medium line of the lip to the septum of the nose, thence around the ala of the nose to the inner canthus of the eye, dissecting up the cheek, reflecting it backward, and then to proceed to remove the superior maxillary bone, together with the tumor through the incision made. I have found that such a procedure in a large majority of the cases in which it is employed is unnecessary. Tumors, especially of the sarcomatous or carcinomatous type, do not always affect the bony tissue of the hard palate except by the absorption of those bones by contact and pressure. Especially is this the case in the formation and development of giant cell sarcoma, a tumor so frequently met with in and about the oral cavity.

Three times during the past few months have I found growth of this character involving the nasal cavity, all the space occupied by the antrum of Highmore, extending back into the sphenoid fissure, from which they often have their origin, and I have successfully removed them by making incisions within the mouth, over and immediately beneath the malar process of the maxillary bone, carrying them forward to the median line, dissecting the tissues away and thus reaching the great mass of the growth. With properly formed curettes of suitable size these growths were removed, and the parts, so far as time would allow us to judge, have assumed a normal condition, as there has been no recurrence to date of these growths, in any one of the three cases to which I have referred. In one case in particular a marked absorption of the maxillary bone has occurred, leaving only the soft part between the oral surface of the soft palate and the tumor lying upon the superior surface filling the nasal cavity. So extensive was the destruction of the bone in this case that that which was the summit of the vault was depressed and carried downward by the tumor so as to be on a line with the occluding surface of the teeth. To make this operation without the loss of the teeth, and without the loss of the palate, it became necessary to construct a splint of metal, made by swaging it with dies, so as to fit the surface of all the teeth of the upper jaw. This splint was cemented into place, the patient dismissed until the following day, when the operation was made for removing the tumor.

The teeth were so loose that they might easily have been removed by the fingers. The splints, however, supported and held them firmly in place and the tumor was removed. While the cavity has not yet filled, the parts are in an apparently healthy condition, and the teeth have become quite firm. This dependent part of the palate, caused by the pressure of the tumor, contracted and finally resumed its former shape. The palate is restored, and the articulation of the patient is in no way impaired. If, however, the usual course of operative interference had been adopted, the patient would have been disfigured through life.

In cases of osseous tumors, involving the greater portion of the maxillary bones, it is often expedient to remove them within the mouth and without any external incisions whatever. Necrosis and caries of the bone may be removed easily within the mouth. On several accasions I have removed one-half of the inferior maxillary bone without external incisions.

In a case of necrosis I removed the entire inferior maxilla within the mouth. This, however, was a comparatively easy procedure as there were no attachments that were difficult to release. It is needless to say that tumors of the lower jaw may be more easily removed than tumors of the upper jaw, as better access to them can be secured. It may be well to urge upon surgeons the great advantages to be obtained in the treatment of fractures of the maxillary bones by the adoption of internal splints.

The skilled dentist, whose ability to manipulate metal as in the construction of regulating appliances, crowns, etc., is especially well adapted to the construction of apparatus or splints for the successful treatment of fractures of the maxillary bones. The application of external splints and bandaging, even when most skillfully applied, is very inefficient in accomplishing the work desired in securing a good adaptation of fragments and restoration of occlusion of the teeth. It is not possible in the treatment of fractures of the maxillary bones, especially the inferior maxilla, to secure good results with any uniformity by the use of external splints and bandages. Such appliances are of use only in edentulous jaws and then in conjunction with the inter-maxillary splints.

The most reliable method of securing a good adaptation of the fragments and retaining them in contact until the process of repair is completed in case of a fracture of the inferior maxilla, is by adjustment of the interdental splint.

To construct and adjust such a splint can be accomplished only by the skillful hands of the dentist. It is true that now and then we meet cases of such character as to make external incisions a necessity, but I feel that every operator in considering the best interests of his patient in all cases where it is possible to do so, ought to operate within the mouth, and thus avoid the formation of scars which will be a disfigurement to the patient through life.

A FEW WORDS ABOUT PACKING AMALGAM IN CAVITIES IN THE BUCCAL SURFACE.

BY E. K. WEDELSTAEDT, ST. PAUL, MINN.

Let us take a practical case. Suppose we have a cavity in the buccal surface of a lower right second molar, which involves the gingival three-fifths of the crown. The rubber dam has been adjusted prior to the preparation. The cavity is ready for the filling material. For various reasons it is decided to use a quick-setting amalgam. Before mixing the alloy with mercury the amalgam pluggers should be taken from their place and fitted to the cavity. The largest plugger that will conveniently enter the cavity should be selected as the instrument with which to pack the amalgam. Now mix the alloy with mercury. Knead it thoroughly, and when it is in workable condition place the largest mass that can be advantageously handled into the cavity and compress it, using considerable force while so doing. This first mass of amalgam should, after being compressed, fill the cavity about one-third. Add another large mass of amalgam and compress it. Continue adding amalgam and compressing it with about all the strength possible until the cavity is overfull. Should the cavity be about three millimeters gingivo-occlusally by five millimeters mesio-distally, take an amalgam plugger six millimeters in diameter and send the entire mass of amalgam home. Do not be afraid to use all the force you can exert. Then let the filling alone until it has fully hardened. Do not use a burnisher to "pat it down," for as the burnisher is drawn across the amalgam from distal to mesial the amalgam creeps from the distal cavity margin. If a burnisher must be used, burnish toward the distal margin, beginning on the amalgam some distance from that margin. Then place an instrument on that portion of the amalgam burnished to hold it in place while the burnisher is being used on other portions of the amalgam. It is better, however, not to use a burnisher. Not more than two or three minutes should elapse after the final condensation before the amalgam should be hard. (The majority of quick-setting amalgams take too long a time to set. There should be an extra quick-setting amalgam, say an alloy that would set in three minutes after being amalgamated. A number of practitioners need such an amalgam.) As soon as the amalgam is hard it should be dressed and trimmed, using the Black trimmers and knives. Trim the amalgam from the center toward the margin. It is seldom or never necessary to trim from the margin toward the center. The more perfect the trimming at this time the less work remains to be done when the final polish is given the filling.

Now just one word regarding the finishing of fillings. It is just as essential that an amalgam filling should be trimmed and polished as it is that the cavity in the tooth should be filled.

From the number of unfinished fillings I see I cannot help saying that there are too many men who simply charge for making the filling. They seem to forget that more work and skill are required to properly finish a filling than is necessary in preparing the cavity and making the filling Altogether too little attention is given this subject of finishing fillings.

I have spoken about compressing the amalgam, of instrumentation and have stated that the burnisher should not be used. In a short essay like this it is impossible to go into any great detail regarding these different things, so let me emphasize a few truths to which attention has been called in the past.

After an alloy has been mixed with mercury, been well kneaded and is ready for the cavity, the great majority of practitioners believe that how it is placed in that cavity makes little difference. This is a mistake and it is one that leads directly to failure, for compressing the amalgam and the use of instruments are both factors that must receive most careful consideration, provided we desire to get the best results from the use of amalgam.

To prove the correctness of what has just been stated, I took a quantity of a well-known alloy and mixed it with mercury. After it was ready for use, I made a series of fillings. In making these fillings a number of different methods of compressing the amalgam were used and different methods of instrumentation tried. A careful record was kept of each of the series made, and a week later they were tested in the dynamometer. After testing these different fillings I tabulated the results and could scarcely believe what was before me, for some of the fillings crushed when 15 pounds were placed on them and others would not crush under 1,000 pounds of pressure. (All the fillings were the same size.) Now when it is taken into consideration that all these fillings were made from the same mass of amalgam we can begin to realize the effect compression and instrumentation have on the final results. The experiment I have just spoken of was not made once or twice, but I took this same alloy and used up the entire ounce in making a dozen or more experiments of the same nature. The only reward I obtained for all my labor was a verification of the first results obtained. I do not like to leave this subject, but enough has been said regarding it in other essays that I have written and it is not necessary for me to do otherwise than to ask that a careful study be made of what has been previously written regarding the use of amalgam.

I stated that it was better not to use a burnisher on amalgam fillings made in the buccal surface, for the reason that amalgam is so treacherous that where pressure is used with the burnisher it readily creeps from the margin. Where amalgam fillings are made in test tubes and examined microscopically before the amalgam has started to set, a black ditch can usually be detected at one or more places near the margin. While the test tube is still on the stage of the microscope, place a burnisher on the amalgam and note the results when you attempt to coax the amalgam toward that black ditch. If a little force is used you will observe that the amalgam on the opposite side of the tube springs away from the margin. Practically the only way to spread the amalgam so that the black ditch will be closed is by using the burnisher with the lightest force possible or by using two burnishers at the same time, one on each side of the filling. Where cavities are filled with amalgam, the amalgam, after being packed, should be let alone until fully set, for burnishing merely invites failure.

If amalgam must be used in a cavity, remember that the best results are obtained when attention is given to proper amalgamation, strongly compressing the amalgam, and to instrumentation. If there is an unwillingness on the part of the operator to follow certain well-known rules for using amalgam, some other filling material had better be placed in that cavity.

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HOW TO PREVENT THE CHECKING OF FACINGS.

BY DR. G. B. SPEER, YOUNGSTOWN, O.

I have read of a number of ways to prevent the checking of facings and allow me to say that I think the word "hurry" covers most of the causes.

I believe if you will use the following method you will not have the trouble of checked facings:

Make of asbestos paper a shallow dish about the size and shape of a common saucer and cut a hole about two inches in diameter in the center. Make a copper wire screen to cover the hole and line the inside of your dish with asbestos, leaving the screen-covered hole open. Next make top or hood with a gas vent in the top to set on the dish. Lay your investment on the wire screen, place on the hood and set your dish on the stand of a Bunsen burner and apply heat slowly till your investment is a red heat, then apply blowpipe slowly with a large flame, leaving your Bunsen burner going at the same time; heat slowly till solder flows over smoothly, then replace your hood, turn off the heat and allow to cool slowly. Pay no attention to moisture or flux, but heat up slow and steadily and cool off in the same manner and your checks will be scarce.

Visit some pottery, take a lesson from the way they fire decorated ware and profit by the example.

DOING THINGS WHICH SHOULD BE AVOIDED.

BY L. P. HASKELL, CHICAGO.

In the March SUMMARY appears an article by a dentist in Germany, entitled "The Double-Plate Swaging System." The writer goes on to show how to develop the rugae in a gold plate by using two thin plates, and several dies of Spence metal, altogether a complicated method of doing what should be avoided, viz., the resting of the plate on the hard center, rugae included. Why? Simply from the fact that sooner or later the alveolar process absorbs and then the plate is bearing hard and rocking on the center, to avoid which obtain relief by a thin film of wax. extending well up towards the ridge of jaw and back to within one-quarter inch of posterior margin of the plate.

Then he says use 18-karat plate because 20-karat is too soft. I have never had occasion since my earliest experience to use less than 20-karat, which is sufficiently low karat to use in the mouth.

A PLEA FOR A MORE INTIMATE RELATION BETWEEN PHYSICIAN AND DENTIST.*

BY WM. A. DICKEY, A.M., M.D., TOLEDO, O.,
Professor of Principles and Practice of Medicine, Toledo Medical College.

I assure you I am not indifferent to the compliment you pay me, in extending to me this, a second invitation, to appear before you in the role of an essayist. It is an honor one infinitely more gifted than myself could well appreciate, coming from such a body as this. I do not flatter myself that I shall have anything new or novel to offer for your consideration. The most I can hope for, is to present a few suggestions that will be helpful to physician and dentist alike; something that will broaden our horizon and give us a keener insight into the close relation that should and does exist between physician and dentist when viewed from the near point and after critical analysis.

Each successive generation of these professions are wont to speak of their own peculiar time as the New Era; and while I would not be understood as deprecating or speaking slightingly of the advances that have been made from time to time during the period referred to, still I think we can justly lay claim to living in the newest of all New Epochs. So rapidly have been the changes that I fear none but the youngest in both of these callings can fully appreciate their significance. With the development and evolution that is taking place in every department of human endeavor, medicine and dentistry is keeping pace. To-day we are heirs to the accumulated wisdom and experience of those who have preceded us. We profit not alone by what they have accomplished that is good, but as well by avoiding their mistakes. We speak in the most enthusiastic terms of the splendid achievements of modern surgery and it is well that we should. A generous public is no less demonstrative than we are. But I fear that because of less opportunities for show the achievements of modern medicine and modern dentistry are some times lost sight of. The wonderful revelation of the microscope in bringing to view the changes of cell life and cell growth as applied to the study of histology and pathology and the marvelous achievements of bacteriology as causes of diseases are alike applicable to dentistry as well as to medicine. Diseases of the gums, and cavities of the teeth and accessory structures caused by bacterial invasion, little understood a generation ago, are now thoroughly comprehended by the modern dentists. Nor can I fail to mention the fact that many deformities of the oral cavity and jaws hideous in their results that were one time considered to lie wholly within the domain of the medical surgeon are now operated on by the dental surgeon. Malformations of the jaw, causing distorted and unsightly teeth, are made perfectly straight and beautiful in appearance, and is of so common occurrence as to excite no comment save from the individual beneficiary. The crowning and filling of teeth is now so perfectly done that it is the exception and not the rule to have them extracted. The dental instruments of today bear little resemblance to those of a decade ago. Convenient in shape and size, delicate and exact in structure, they not only render your work much more easy of accomplishment, but make it possible for you to do more work with less fatigue in a given length of time than ever before. Then, too, the work is infinitely better done when in skillful hands, but what is of more importance still, the unfortunate victim who is at the other end of the instrument, like the one who is at the other end of the spoon, suffers less. All this is done upon a scientific basis and founded upon scientific thought and investigation, which leads me to say that dentistry has been raised from the plane of a trade, as some were once wont to call it, to the realm of a scientific profession; from the domain of empiricism to something near an exact science. Having reached this higher point, I am sure the end is not yet and the future, the immediate future, will witness still greater achievements in your profession than the immediate past, because your vantage ground is better. Your manifest duty then is to see that all who enter your ranks are adequately prepared for the higher duties and functions that await them; in this way and in this way only, can you keep up that high standard of excellence which I am sure the future will demand of you. The period will demand it; an enlightened and educated public sentiment will demand it. The time is here now if you please, it will be more imperative in the future when the family dentist, like the family doctor, will be expected to be an educated gentleman and not a mere pretentious bungler; one skilled in his profession and thoroughly abreast with the most advanced thought. I do not believe this is the rosy view of an optimist. It may be, and doubtless will be, the province, yea, the duty of doctor and dentist alike to assist in the proper education of the general public that they may, as a whole, duly appreciate the sooner the true from the spurious. I would not have you think that I believe the professional millenium is here, but I believe you will coincide with me when I say the day of the professional man who merely assumes is doomed.

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*Read before the Toledo Dental Society.

Having thus far generalized, as it were, let me speak for a time more specifically of what I believe to be the more intimate relation between physician and dentist. A good digestion is one of the prime essentials to good health. It is not the amount of food that is taken into the stomach that is beneficial to the organism, that builds it up; but the amount that is well digested and assimilated. Now food that is not well masticated will sooner or later retard or destroy digestion, hence bring about ill health. Bad teeth then means bad digestion, and as a natural sequence ill health, and the physician who fails to recognize this potent factor when treating indigestion will at times signally fail. So impressed am I with this fact that in the out-patient department of the Toledo Medical College, I have the students examine the teeth of all patients who present themselves, as a matter of routine. Little pus packets are constantly forming about the teeth, in which bacteria of different kinds are found and mixing with the food, are swallowed and in this way digestive derangement is often inaugurated. Nor are these small pus pockets about the teeth the only source of infection; decayed teeth, even though the cavity be but a small one is often the nidus of germs which ultimately produce gastric derangements. In the past, not yet far removed indeed, it was not considered so essential to look after and properly fill cavities in the teeth of children; that was left for the middle and late period of life, now it is the rule and not the exception to do this, thus giving them an opportunity for better nutrition during a period of active cell growth, and preventing that anaemia which sooner or later comes from mal-nutrition to young and old alike.

Nor are disorders of digestion the only maladies that may arise from diseased gums and teeth. Since the germ theory of disease has come to the front with so much prominence, indeed has been proven with mathematical exactness, the oral cavity is looked upon as the atrium for the germs producing many of the most serious diseases the physician is called upon to treat. Take, for example, tuberculosis, typhiod fever, rheumatism, la grippe, endocarditis and the like, the mouth is easily and logically the point of entrance for the germ producing them, finding lodgment about the teeth, in the teeth, on the tonsils where they grow and multiply, they are soon swept into the common current and serious results follow.

I hardly need call your attention to the fact that disease may be communicated by the use of unclean dental instruments. Syphilis and diphtheria may be mentioned as types, to say nothing of the liability to disease of the maxilla resulting in necrosis. Modern asepsis as applied to surgery is alike applicable to the work of the dentist; and he who neglects this fundamental principle not only does himself, but those confided to his keeping a gross injustice and one from which may flow irreparable injury. Too much care cannot be taken in this direction. As the surgeon goes over all his instruments in the most careful detail before each operation to see that they are scrupulously clean, so the dentist should exercise the same painstaking care before each operation, no matter how trivial. It is not alone the operation of greatest magnitude that demands it, for serious and widespread disaster may follow in the wake of the most trivial operation. If "eternal vigilance is the price of liberty" in a political sense, freedom from septic infection of all kinds can only be had by vigilantly guarding every avenue of entrance, of which unclean dental instruments is one. And finally, gentlemen, I make one more plea for a closer relation between physician and dentist, and that is to be found in their frequent meeting together for the discussion of topics of mutual and scientific interest; to become better acquainted, to enjoy the friendly greeting which association of this kind can and will awaken; to break down the barrier that sometimes doth hedge us about. To gather around the festal board and with feelings of good cheer and good digestion cement closer the bonds of friendship, fealty and fidelity.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

AN EASY METHOD OF EXTRACTING UPPER CUSPID TEETH.

BY DR. C. E. BELLCHAMBER.

When preparing the upper jaw for the reception of a denture it is at times difficult to extract the cuspid teeth. To overcome this, first extract the lateral incisor, then the first bicuspid, in the usual way. Then take an upper root forceps (bayonet shape preferred) and place the beaks up in the sockets of the other teeth a sufficient depth, and by cutting through the thin piece of process a firm grip on the root of the cuspid is secured. In most cases it will not require one-half the strength to extract the tooth.

By this method one can extract badly decayed teeth without danger of breaking off the remaining part of the crown. —*From Dental Brief.*

COMBINED LOGAN AND RICHMOND CROWNS.

BY JULIA C. WOODS, D.D.S., ALTOONA, PA.

By making a perfectly fitting Richmond *cap, without* the pin, cutting out an opening the size of the prepared canal, and after preparing the root as for a Richmond crown, you can set the cap with thin cement and are ready for the ordinary Logan crown.

If the root is ragged and decayed at the edge, this is especially useful, as it would be impossible to get a perfect joint with the Logan alone. It also prevents the possibility of the root splitting.

Now, if the Logan is fitted, in the ordinary way, perfectly against the gold cap and cemented into place, I do not see how it would be possible for the pin to bend if the crown rests, as it should, firmly against the gold cap.

This method I regard as having many advantages over either the Logan or the Richmond crown. The backing of the Richmond prevents the rays of light passing through, and you cannot obtain the translucency which we have in the natural tooth and which can be so closely imitated in the Logan. It also does away with the time and risk of soldering the facing of the Richmond. I have used many in this manner and have not yet found a single unsatisfactory case.—*From Dental Brief.*

REPAIRING A LOGAN WITH A DAVIS CROWN.

BY DR. W. H. MANNING, PHILADELPHIA.

When a patient has had the unpleasant experience of having a Logan crown to break and leave the pin remaining in the root, I find the best way to repair the damage is to purchase a Davis crown, it being made without any pin, but has a cavity into which a pin can be inserted.

Grind a careful joint and trim the pin to fit as accurately as possible, then roughen the pin and cement the crown in the usual way.

This plan, I think, is preferable to cutting out the pin and inserting a new Logan crown, it being a tedious job, and there is a possibility that the drill may be deflected and go through the side of the root.

I have had very satisfactory results from this pracedure. —*From Dental Brief.*

TREATMENT OF SENSITIVE DENTINE.

H. R. Harbison—Mixture of carbolic acid and creosote, equal parts, with hot air and sharp instruments.

A. H. Palmer—I depend on hot air combined with some suitable medicine, like carbolic acid or cocaine, and sharp burs.

Bert Picket—Have had good results from the use of *new burs,* with *high speed,* and also by the use of vapocaine, put up by McKesson & Robbins, New York.

A. H. Hooker—I find that, "in my experience," *chloretone,* a saturated solution in ether, comes the nearest to fulfilling all the necessary requirements, without the ill-effects which sometimes follow the administration or application of other local anesthetics and obtundents.

L. H. Jones—After adjusting the rubber-dam I excavate the soft tissues, apply sulphuric ether on pledget of cotton, wait two or three minutes, remove and apply alcohol on pledget of cotton, wait two or three minutes, remove and excavate. If still very sensitive I repeat the process. And if still very sensitive I apply a few crystals of sulphate of cocaine, pulverize them thoroughly, moisten with a drop or two of water, wait two or three minutes, excavate and repeat if necessary. Never use the above application without rubber-dam

R. F. Phillips—Dry teeth by any method, remove such decay as can be done without pain, then apply vapocaine, cover with any air-tight substance (preferably dam or vulcanite rubber). When latter is used it should be held in place with finger to prevent escape of remedy from cavity and to hasten its evaporation and penetration into the tubules of the dentine.

The value of the remedy seems to depend entirely upon the extent of penetration into the painful region. It therefore logically follows that its efficiency in subduing or preventing pain depends largely upon care and thoroughness in its use.

R. W. Morris—Apply carbolic acid, rendered thick with cocaine crystals, directly to the sensitive cavity from the point of a pair of pliers, depending upon capillary attraction to withdraw it. Throw a jet of warm air, to be followed quickly by a jet of hot air, directly into the cavity to heat the parts, then apply the point of a broken excavator, that has been heated red hot, into the liquid and instantly withdraw it, apply again for a second and repeat until the patient bears the hot point without flinching. Upon excavating there will be no pain at all in many cases, and an alleviation of sensitiveness in many others. In persistent cases it will be necessary to repeat the application several times as the work progresses. There will be cases that present themselves in which this method is contra indicated; in which it only seems to add its own shock to the already painful condition. A short trial will soon indicate to a careful operator when he has found such a case—and when to seek some other remedy.—*Extract from report in Pacific Dental Gazette.*

THE REPLACEMENT OF ONE OR MORE OF THE SIX ANTERIOR TEETH BY POSTERIOR ATTACHMENT.

BY DR. WALTER BARTLETT, ST. LOUIS, MO.

When a case presents itself where one of the six anterior teeth is missing, and an artificial substitute is desired to fill the space, we have a choice of several methods which are now in use, each of which has its advocates. I would here suggest a method for these cases which I find answers the purpose admirably, and in which after some extended practice I have yet to cite a single failure. As an illustration I will take up my first case, which was made about three years ago. Taking the statement of the wearer, whom I had the pleasure of seeing a few days ago, it has given perfect comfort and satisfaction since the day it was set in position.

In this case the left central incisor was lost, and the gentleman had been wearing a small gold plate for about five years with considerablde discomfort. The second bicuspid on the same side was crowned with a Morrison crown. I removed the crown and adjusted a new one, using for my band 27 gauge; and on the palatal surface gave it a doubling of the same gauge to insure strength. I then fitted the crown in position in the mouth, and took a plaster impression of the crowned parts, carrying the impression to the cuspid on the right side. After removing the impression from the mouth I set the crown back in proper position in the impression and then proceeded to make my model in the usual way. After separating, I allowed the model to become thoroughly hardened. I then took a piece of platinum, 35 gauge, cut to pattern, reaching from crown to edentulous space to be substituted. I cut the pattern on a curve in order to free the palato-cervical borders of the intervening teeth, allowing about one-fourth of an inch between the teeth and platinum. I now annealed my platinum, placed it upon the model, and with the use of burnishers I burnished the platinum to the model until its adaptation was perfect. I then removed it, smeared the lingual surface with a cream of borax, and upon this surface fused some platinized gold. After cooling, I replaced it upon the model and took out any warpage there was, and repeated this until I had fused a sufficient amount of gold upon the platinum to make a rigid bar. I then filed and shaped this piece to the desired curves, allowing a good surface to rest where the tooth was to be replaced. I then set the bar back upon the model, and in contact with the crown, and cemented them with sticky wax. I removed carefully the bar and crown; and invested in investing material, and soldered the crown to the bar, using only enough solder to secure a perfect union. The piece was then ready to try in the mouth. After it had been placed in position, I took a wax bite of teeth occluding at missing space; and then a plaster impression was taken. When the impression had been removed I set into position in the impression the appliance constructed, tacked it down with some wax, poured the model, separated and articulated. At the labial surface of the missing tooth, I trimmed the plaster so that when the tooth was ground and attached it rested firmly on the gum. After the tooth was ground, and in desired position, I backed it with platinized gold, gauge 24, connected it to the bar with sticky wax, removed and invested. In soldering I contoured the palatal surface to almost conform with the natural teeth on each side, to give strength and artistic appearance. The piece was then finished and ready to be cemented into position. This long leverage upon one point may seem to you impracticable, but I assure you that with the aid of the center space flanges and snug rest of the overlapping porcelain there is very little give to this structure.

I have used this method to the extent of carrying two teeth with equal success. In this case I replaced the left central and lateral, using for my anchorage the second right and first left bicuspid, joining the bars at the edentulous space.

In selecting my posts I always look for the tooth whose crown life in my judgment is the shortest, made so by large or imperfect fillings. If all things are equal, I use the second bicuspid, for when crowned it is less conspicuous.

My observations have been that there is no inflamed condition of the gums under or to the sides of the rest, such as we often find when dentures stand away from the teeth. The tissues under platinum always remain in their normal condition, if there be not too great a pressure. This is no doubt due to the fact that the fluids of the mouth have no chemical action upon this metal.

The figures 351, 352, 353, and 354 represented in Evan's Edition on Crown and Bridge Work are ideas on the same line. Wherein we differ is in regard to the bar, he advocating the use of a round bar, while I advocate a perfect adaptation of metal to the soft parts, to insure against accumulation of food stuff; secondly, a flat surface with perfect adaptation takes upon itself considerable of the support, while by Evan's method the entire strain is upon the crowned part.—*Extract from article in Dental Era.*

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DISINFECTION OF INSTRUMENTS.

BY DR. J. H. POLLAK.

Dr. Pollak says he has made comparative investigations on the various methods of disinfecting cutting instruments. He has employed pure alcohol, diluted alcohol, spiritus saponis kalinus, hydrargyri perchl. (1 in 1,000 and 1 in 5,000), carbolic acid (1 in 50 and 1 in 20), and formalin (1 in 500 and 1 in 1,000) as chemical means of sterilization; mechanical cleaning with sterile water, with alcohol, and with spiritus saponis; and sterilization with boiling water and with boiling soda solution. He used a shoemaker's awl as a test instrument, and infected this with pus containing virulent staphylococci, so that the conditions met with in surgical practice were imitated. Only in a few cases did he use anthrax spores. In his first series of experiments he found that all the chemical agents except formalin were capable of destroying the staphylococci in twenty-five minutes. In the second series he determined the number of colonies which grew after treatment with formalin for five, ten, fifteen, thirty, forty-five, and sixty minutes, and two and three hours. The results show that formalin is of no use for the sterilization of instruments. Carbolic acid (1 in 20) and spiritus saponis kalinus were capable of destroying all bacteria used (staphylococci and streptococci) in five minutes, and in a further row of experiments the number of colonies found after treatment with these agents for one, two, three, four, five, six, and eight minutes show that carbolic acid is only slightly more antiseptic than soap spirit. Mechanical cleaning with spiritus saponis for thirty seconds proved sufficient to sterilize the awl, while, when water or alcohol was used, a longer time was necessary. He concludes that: 1. Boiling, and especially in soda solution in a closed vessel, is the best means of sterilizing, but that sharp instruments are blunted by the process. 2. Soap spirit is capable of sterilizing sharp-edged instruments in fifteen minutes, without blunting or otherwise affecting them, when infected with ordinary pyogenic organisms. 3. Mechanical rubbing with soap spirit for thirty seconds is an excellent procedure. He further states that in actual surgical practice he had every reason to be satisfied with this method of cleaning sharp instruments.—*Dent. Med. Woch.*

FIRST MOLAR NECESSARY TO DENTISTS' FINANCIAL SUCCESS.

BY C. M. WRIGHT, D.D.S., CINCINNATI.

Twenty years ago a dentist of fine address and education, of refined tastes, cultivated by study and travel, with a large practice among the creme de la creme of the city in which he was located, accompanied me to a dental society meeting, the first he had ever attended. The subject under consideration was, "Shall the Sixth Year Molar be Preserved?" Shortly before that time Dr. Atkinson had suggested, that if for any cause early in a child's life one of these molars had to be sacrificed, it might be well, in order to preserve harmonious facial development, to extract the remaining three teeth. The question was warmly discussed pro and con, and purely from scientific, surgical and esthetic standpoints. After the meeting, as my friend and I were discussing the menu at the hotel, I asked him if he had not found the meeting interesting and profitable. His reply gave food for thought as a broad business view. Said he, "I was disgusted with the whole affair. I never listened to such stuff. Figure it out for yourself. The sixth year molars are particularly liable to decay, and each one may develop five or more cavities on the different surfaces. Let us say five, then we may expect to be called upon to insert four times five fillings in each patient's sixth year molars. Each filling, we may say, will be worth $4. Four times twenty equals $80 for each patient's four first molars. Supposing a dentist has but one hundred patients each year who requires these operations; one hundred times $80 equals $8,000. Supposing that there are 20,000 dentists in the world who have each these one hundred patients a year; multiply $8,000 by 20,000 equals $160,000,000, and you have that amount lost to the dental profession each year by the extraction of these sixth year molars. Bah! no wonder dentists are poor."

My friend retired from practice after twenty years of devotion to his work and lived ever afterwards like a gentleman.—*Dental Digest.*

HELPFUL HINTS.

BY C. F. RODGERS, D.D.S., CONNEAUT, O.

Use a saturated solution of salicylic acid in alcohol for canker sores, drying the gums well before applying.

If pins become loose in a vulcanite tooth, and you wish to replace same, flow a little thinly mixed porcelain body around them and bake in furnace.

In extracting roots which are decayed nearly to the top, leaving a mere shell, cut a soft pine peg to fit tightly in the root, drive to place and extract, when the stump will come with it.

Fusible metal is excellent for temporarily fastening a tooth on vulcanite plate. Dovetail well and hold tooth in place with moldine, pressing the metal in with hot wax spatula.

If point of tooth is broken off and you have no tooth in stock to match, remove the broken tooth from plate, build out with proper shade of enamel and bake. Broken blocks also can be neatly repaired in this way.

A lateral inside of arch, but directly back of its proper position, is a common occurrence. Fit a gold cap to the lateral, then back up a plate tooth, wax against the cap while in position, remove, insert and solder backing to cap. Look out for the bite.

One of the greatest conveniences in my laboratory is a block of hard wood, thirty-eight inches high and twelve inches square, on the right and left sides of which, flush with the top, are shelves eight inches wide. This block cannot be excelled for swedging of all kinds, as it gives a large, solid surface.

It is often the case in bridge work that the gums are so receded that the teeth must be made longer than were the original ones, so that when patient smiles about an inch too much tooth is shown at the necks. I have found that a very pleasing effect can be obtained by baking pink gum enamel on the necks of the teeth to correspond with the gums on the surrounding ones. If the teeth have been accurately fitted to the gums this work will hardly be noticeable. It also answers well for crowns. If it is done after the bridge is made, invest so that all gold is covered, just allowing the necks of the teeth to show.

To make a simple crown, prepare the root a little long at the back, well under the gums in front, burnish a piece of 34 or 36 gauge platinum, cut a little larger than the root, well over the end, lapping the edges well over the end, punch a hole directly over the canal, and in this hole insert pin, 17 or 18 gauge. Select a plain rubber tooth and fit to place, allowing the pin to pass between the pins on the tooth under the heads, bend the pins together so that they will grasp the pin tightly, wax all together and invest all in mouldine, pin side up. Melt out wax and solder all with as little pure gold as will just hold the different parts together. Place in investment material, build up well around the pins with low fusing body, mixed rather thin, dry well with spunk, and bake in furnace. After cooling, build on more body until the crown is properly contoured, and bake to a glaze.—*From Dental Digest.*

NEW KIND OF BANDED LOGAN CROWN.

BY A. A. BABCOCK, D.D.S., BRANTFORT, CAN.

Trim the root and make the band, and adapt the same as for Richmond. Face the band, being sure that the lingual is as close to the root as possible; this will help you in the matter of space later on.

Next take the crown selected, and make a perfect adaptation to the cap for about one-third of the depth of the crown, labio-lingually, then the remaining two-thirds should be sloped off at an angle as acute as the build of the crown (Logan) will admit, This is important, as it is hard to make solder flow in a very acute angle as we all know. Having adapted these two parts to our satisfaction, put a facing over the pin of the Logan, and burnish it over the lingual. This can be easily done by slightly notching the gold along the edge that we want to turn over. This being done, put the cap on the root, and with a small piece of resin wax, or some such compound, around the lingual half of the Logan, force the two parts together, holding them there until the compound is hard. Trim off the excess with a warm instrument and remove the whole, invest and solder. This gives a crown that is free from the splitting of facings in the Richmond, with the qualities of the Richmond band in addition.

In bicuspids it does away with the all-gold crown, to which some people object, and puts an all-porcelain one in its place, with a band to protect the cement from the action of the saliva. As to durability and to appearance, I think they excel, because the Logan crowns themselves are modelled in excellent patterns of original crowns, and are far ahead of anything we can build ourselves, especially in bicuspids.—*Extract Dominion Dental Journal.*

TO IMPROVE THE APPEARANCE OF ARTIFICIAL TEETH.

BY R. D. JARVIS, L.D.S., LONDON, ONT.

To aid you in the selection of teeth to be used, you must take into consideration the lower teeth and stature of patient for size and shape, and complexion for shade of teeth to be used. If single teeth are to be utilized, break up a half dozen sets if necessary, but do not send a denture out of the office the teeth on which are all the same shade. If you observe the natural teeth closely, you will see that the laterals are a shade lighter than the centrals, and the cuspids a shade darker, the bicuspids about the same shade as the centrals, and molars a trifle darker. In using and sticking to the teeth of one set only, there is too much of a sameness about the appearance when finished, a look of artificiality that is only too apparent. Of course if gum-section teeth are to be used, you cannot be so particular as to shades as when single teeth are used.

A suggestion or two in reference to gum-section sets will perhaps not be amiss here. When using them use the Samson rubber in preference to any other, for the reason that it becomes more plastic under heat, and any surplus will escape more readily from the flask, lessening the danger of dark joints. Use the Donham spring press for the closing of flask *in the vulcanizer,* when the rubber reaches its most plastic condition. V-shape the joints when grinding, and when flasked pack with cement and, if possible, let the case remain over night before packing, so that the plaster can harden well.

When a case is finished, you can grind and mutilate the teeth as much as you wish, only do not have them looking all alike and even when inserted.—*Extract from article in Dominion Journal.*

EXCISION OF SOFT TISSUE BEFORE TAKING AN IMPRESSION FOR PLATES.

BY HART J. GOSLEE, D.D.S., CHICAGO.

A feature of very great importance, in my opinion, is the excision of flexible ridges of soft tissue which we so often find in upper mouths, where the teeth have been out for a number of years. I have a roll of such tissue in my pocket which I brought here to exhibit, not particularly because it is in itself interesting, but rather because of the history of the case. Four practitioners had attempted to make plates for this patient unsuccessfully, and two of them made more than one, but all without success. The patient was referred to me, and the first thought that came to my mind was the excision of that soft ridge of tissue. This was immediately done under nitrous oxide, and in three weeks a plate was inserted that was absolutely perfect. I am not complimenting myself, as the plate was made by one who had previously tried without success, and the achievement was due only to observing a detail that was necessary in that case, because it was almost an absolute impossibility for any one to get an accurate impression with that soft ridge of tissue present, and even so the plate would always have been susceptible to movement under pressure.—*From Report in Review.*

INLAY WORK—SUGGESTIONS.

BY E. M. FERNANDEZ, CHICAGO.

In preparing cavities for inlay work we should use all the grinding material we can. If we cannot use grinding stones, we can use grinding powders in connection with soft metals, and wash them away from the cavity after the cavity is prepared. If I use a steel instrument, I want the cavity as dry as I can get it. I try to avoid, as much as possible, heating up the enamel or any part of the tooth.

In regard to a perfect fit, there is a great difference of opinion as to what is meant by a good fit. I claim that the dentist who will make a porcelain inlay a perfect fit to a cavity will make a worthless inlay, for the reason that we have not the cement for that purpose to-day. That is what we need mostly for this work, a cement which will be insoluble in the acids of the mouth, transparent or almost colorless, non-irritant and very thin in consistency.

The cement we have at present occupies considerable space. Therefore, the matrix should be of the same thickness which is to be occupied by the cement. In a great many cases I think it is best to make an inlay slightly tapering-shaped. It is too difficult to explain in words how to make an inlay and be clearly understood. I will say a few words, however, which I hope will be clear to you. I prefer to use a heavy platinum, and also not to invest it. I prefer to have the heat come in absolute contact with the platinum while baking. By doing so the cracking of the porcelain and a great deal of shrinkage is prevented.

To bake an inlay I first drop a globule of the porcelain material in the center of the matrix, then I tap it, and get it as dry as I can by tapping. Evaporation will dry the water. By constant light tapping the porcelain material will settle to the bottom and evaporation will take care of the water. If you have that well packed, you will be surprised how little shrinkage you have, if any. I bake once with only one-quarter of the matrix filled. I do not bake it to a high fusing point, but I flow it so that it is almost glossy, then I add two or three more parts to it, packing and baking each time as before. The last time it is baked to a gloss. Supposing you get a perfect fit, you have a piece of porcelain that fits the cavity perfectly. You cement it; and you find the inlay protruding from the cavity so you are obliged to grind off the surface in order to have it flush or even with the surface of the tooth. That is one of the greatest mistakes made in porcelain inlay work. Therefore, if you make the walls of the inlay slightly tapering, and remove with a sandpaper disk the gloss from the parts of the inlay that fit into the cavity you will have, when cemented, an inlay flush with surface of the tooth without grinding it; the cement occupying only the space which was removed by the sandpaper disk.

A MEMBER: How are you going to leave that?

DR. FERNANDEZ: By having a tapering shape to the cavity. You have the thickness of the platinum to allow you to drop the inlay into the cavity, and then the other amount of space you gain is that which you remove with the sandpaper disk, taking the gloss off from the parts which will bear against the cement. If you try to cement an inlay, leaving a glossy surface, it will not hold.

I do not try to make undercuts in an inlay. It is a difficult matter to do so, and it is very hard to get the cement to run around into the undercut. But I do take the gloss off, as by doing so it leaves a better surface for the cement to take a good hold.

In regard to the color, I find if the color is one shade lighter it will look better.

If I try to match it exactly, I cannot do so except by accident.

With reference to the proportion of failures, I do not think they should amount to forty or fifty per cent. if we learn how to make porcelain inlays outside of the mouth first. The cement is a great question now and I hope our chemists will before long help us out.—*Extract from Dental Review.*

A QUICK METHOD OF MAKING INLAYS FOR LARGE CAVITIES.

BY WILLIAM GUY, F.R.C.S., L.D.S.

This method is, I think, a suitable one for large crown, or buccal cavities in molars. The only special apparatus required by those who possess an inlay water bag swager is a small circular tray, about an eighth of an inch deep, struck in one piece and easily fitting the barrel of the swager. The cavity is prepared by cutting out freely the edges with enamel cutters, and then shaping, trimming and opening out. This, I find, is best done with carborundum points run wet. An impression is taken in dental lac; this is chilled in cold water. A piece of modelling composition of a size to nicely fill the tray is softened by dry heat, moulded into a cone or pyramid, the base about half the area of the tray, and placed in the tray. The impression is vaselined, the apex of the composition cone, which may also be vaselined, is put in its deepest part, the composition in the tray is steadily pressed home, the impression is as steadily withdrawn, and the composition model of the cavity thus obtained is at once chilled. If any of the composition bulges over the side of the tray it is pared off with a sharp knife. The model is dried with cotton wool in tweezers and French chalked, a platinum matrix is swaged in it in the inlay swager, and the inlay fired in the usual way.—*Dental Record.*

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METHOD OF SWAGING AN ABSOLUTELY PERFECT OCCLUDING CUSP.

BY DR. J. P. CORLEY, GREENSBORO, ALA.

Proceed in the usual way to carve cusp—take impression in plaster, fill impression with mouldine, press this upon some smooth surface then lift off plaster impression. This will leave an exact reproduction in mouldine of correct cusp. Place rubber ring on slab around this male cusp, pour fusible metal and you will have a female die which will give an exact reproduction in gold of the carved cusp, If there is the least individuality in the stump and consequently the band, it will be impossible to improperly assemble band and cusp. Therefore flush cusp. Strike off cusp with file, also band, then warm cusp, touch with a little fluxed wax, assemble parts, invert upon asbestos slab and heat up to flowing point. If properly done it will require cuttlefish disk only to finish.—*Dental Hints.*

A PECULIAR CASE OF ABSORPTION.

BY J. T. M'CULLUM, D.D.S., CORNELL, ILL.

A peculiar and embarrassing misfortune befell me the other day. It is a case that I think will interest the profession, and I take the liberty to give a history and description of the case. Mrs. H., aged 35 years, came to me three months ago to have her teeth put in good order. She had Logan crowns upon the two upper central incisor teeth. The right lateral was absent, and she wanted me to do what I thought was needed to make her mouth presentable. I found the right central crown was loose and causing trouble, so I decided to extract the root, which I did and found the upper two-thirds of the root had been absorbed on account of the post of the crown being too long. After the gum had healed I proceeded to prepare the roots of left central and the right cuspid for piers of a porcelain-faced bridge. Nothing abnormal presented itself until I had the patient come to try in the partially finished crowns, when I discovered a small growth, which bled at the slightest touch, of an epulic nature in the pulp-chamber, the walls of which were perfectly sound at the last sitting. After careful examination I found that the distal wall had been absorbed, leaving an opening about four millimeters long by two millimeters wide, through which an epulic tumor had protruded. There had been no signs whatever of any abnormal condition; the gums were normal and the patient said that she was not aware of any soreness about the part.

I have seen several cases of absorption which had their start from abscesses and defective crown-posts, but all of these started to absorb at the apex of the root, while the case I have cited seems to be different from anything I have so far seen.

The reason I called it an embarrassing misfortune is this: Mrs. H. conducts a millinery establishment next door to my office, and I had planned to put the very best of my ability into that bridge, as several would-patients were waiting to see it before undertaking the work in their own mouths. Losing that root compels me to forego the bridge work.—*The Bur.*

COMBINATION GOLD AND AMALGAM FILLING TO FORM A BAR TO ORAL FLUIDS.

BY DR. A. C. HEWETT, CHICAGO.

Case.—Left central incisor, superior left approximate cavity. Sterion white alloy amalgam and Williams' gold foil cylinders were used, compounding and finishing at a single sitting, Dr. John C. Kinney operating.

The claim is made by Dr. Hewett that with a thin coating of sandarac, or resin varnish, spread upon dentinal walls and gingival margins, a layer of amalgam can be quickly burnished upon said walls and margins and a base formed upon which to build gold, that will remain an absolute bar to oral fluids.

The claims are furthermore made, that the cohesion of gold to amalgam and amalgam to dentine adds very largely to stability and preservation, and that much less time is required to insert a filling in this way. Such use of amalgam is not advised in exposed positions, or behind exposed translucent enamel.—*The Bur.*

LOCAL ANESTHETICS.

In spite of the fact that cocaine and eucain and various other local anesthetics have been in use for a considerable period, the cry of the dentist who has much extracting of teeth to do is for a good, safe compound to deaden pain in removing teeth. For our part we do not see any good reason for not using nitrous oxide for this purpose as being much safer and more reliable altogether than the hypodermic use of any drug that will pollute the blood-stream. Many times we have received letters from dentists saying that they had sore mouths from the use of medicines injected into the tissues even when the instruments were, apparently, perfectly clean and sterile. The time required for the use of nitrous oxide cannot, ordinarily, be more than that used for the injection of remedies, and we think it a much cleaner operation and altogether safer for the non-medical dentist. Why not try this, based upon so many hundreds of thousands of successes as compared with the numerous failures reported from the hypodermatic methods?—*Editorial, Review.*

BLEACHING WITH SODIUM DIOXID.

BY J. P. BUCKLEY, D.D.S., CHICAGO.

Dam is placed upon the teeth, a thin platinum band is placed about the tooth and wedged snugly against it with gutta-percha. The powder is now placed in the cavity, a small gold or platinum spoon being used for the purpose, and with a glass instrument it is forced snugly against the cavity walls and into the canal. Distilled water is now dropped into the cavity and a piece of platinum is placed over it to force the generated oxygen into the tooth structure.

This is followed by thoroughly washing the tooth out with warm water, a small sponge being used to absorb the water. After drying cavity the same operation is repeated until the tooth is satisfactorily bleached. Should it be found impossible to remove the pigment with water, a 3 per cent. solution of sulphuric acid will chemically dissolve it, after using which, dry cavity without using hot air if possible, and then burnish against all exposed dentive a paste composed of precipitate calcium phosphate and distilled water. Make a base of light colored cement and insert filling.

The chemical test for Na_2 O_2 is as follows: Place about 1 gm. of powder in a clean, dry test tube and add 1 or 2 c.c. of water. If chemical is efficient, enough oxygen will be generated to kindle to glowing a splinter held at mouth of tube.—*The Bur.*

COMPARATIVE VALUE OF COCAINE AND EUCAINE.

BY J. A. CRONKHITE, LOS ANGELES, CALA.

Cocaine was first discovered by Gaedeke in 1855 as an alkaloid obtained from the leaves of the Erythroxylon Coca of South America, giving it the name of erythroylime.

Dr. Albert Neimann, from whom it received its present name, "cocaine," noted the fact that a crystal of cocaine when applied to the tongue, produced a local anesthesia, but his investigations, with those of others, failed to receive special attention until 1884, when Dr. Koller, of Vienna, demonstrated the action of cocaine in solution in the eye.

Cocaine appears in the form of white crystalline powder, bitter to the taste, sparingly soluble in water, about 1 to 704 parts soluble in alcohol and ether, with strong alkaline reaction.

Cocaine salts as hydrochlorate and citrate are employed in medical and dental practice.

Apparently very little is known concerning the physiological action of cocaine, but that it is a valuable local anesthetic and anodyne is beyond question.

The toxic effect of cocaine is upon the respiratory centers. Its absorption is followed by a stimulation of the cardiac and respiratory functions which is commonly followed by a reaction, the stimulating giving way to depression. It is to be noted that the depression following as a secondary effect upon primary stimulation may not occur for an hour or even later after the administration of the drug.

In the hypodermic use of cocaine, the relatively safe maximum dose should never be exceeded, and the exact amount administered in a given case always definitely known. A common error is the dependence upon percentage solutions. The supposed harmlessness of a dilute cocaine solution is erroneous and misleading unless the factor of the absolute quantity of the drug contained in a given amount of solution is constantly kept in mind.

In prescribing cocaine for hypodermatic injection, analgesic is the first element to be considered, the dose is not to exceed ⅛ grain. The second factor demanding attention is a physiological antidote, one which will not neutralize the analgesic effect and yet will prevent the toxic action of cocaine upon the respiratory and cardiac functions. Morphine is the agent, as its full physiological effect is not required; a small dose, 1-12 grain, is sufficient. The addition of one drop of one per cent. solution of trinitrin will prevent the abrupt spactic contractions of the heart.

Fungi develop freely in solutions of cocaine, so that if the prescription is to be a permanent solution, an antiseptic is required to prevent decomposition. Thymol, boracic acid or silicylic acid will act as preservatives. Boiling of solutions of cocaine cause its decomposition and the breaking up into its component parts, therefore solutions containing cocaine cannot be sterilized by boiling.

The dangers from the use of cocaine are:

First—Certain persons possess a constitution peculiarly susceptible to cocaine, which cannot be foreseen, or entirely guarded against.

Second—Cocaine exerts its toxic effects upon the nervous centers, secondarily the heart.

Third—Its evil effects are most liable to be seen in neurotic subjects.

Fourth—The danger in cocaine poisoning is mainly from paralysis of the heart, syncope.

Fifth—It may be well to precede its use by the administration of alcohol or other cardiac stimulant, as with chloroform.

Sixth—Special care is needed in "weak heart" or organic heart disease.

Seventh—The subcutaneous administration is dangerous.

Eighth—The use of the stronger solutions is dangerous and unnecessary.

Ninth—The treatment of cocaine poisoning consists of heart stimulation, especially inhalations of nitrate of amyl and such restoratives as brandy, whisky, aromatic spirits, ammonia, strychnine, atropine, digitalis, ether and chloroform. Efforts should be made to moderate and reflex excitability of the nervous system, sustain the heart and re-establish the equilibrium of the blood pressure.

Eucaine—Discovered by Dr. Geo. Merling, Berlin.

Eucaine is derived from a reaction between acetone and ammonia. The salt usually employed is the hydrochloride which is in the form of a white crystalline substance or powder, odorless, bitter to the taste. Soluble in water, chloroform and alcohol.

The introduction of eucaine as a local anaesthetic was due to the observed similarity of that synthetic compound with cocaine, an instance of presaging the physiological effects of a drug by its chemical composition.

Eucaine when applied locally produces some hyperemia of the mucous membrane rather than anemia, but, nevertheless, causes a very desired loss of sensibility. It has a marked advantage over cocaine, in being less poisonous, although their dosages are similar.

The general action of the drug produces a marked excitation of the entire central nervous system, and in lethal doses convulsions effecting all the muscles, general paralysis and death by a failure of respiration.

The sedative central influence causes a quickening of the heart beats through the sedation of the inhibitory—"pneumogastric" nerves.

Although less toxic than cocaine, eucaine produces a greater degree of insensibility to pain, consequently the dosage need not be greater than cocaine; about ½ to ¾ grain being the maximum. The solutions are chemically non-soluble. The precautions to be observed and mode of application are the same as for cocaine.

In conclusion we find: Cocaine as a vegetable alkoloid. Eucaine a chemical compound.

The lethal effect of cocaine is paralysis of the heart, while with eucaine death is caused by failure of respiration, the heart continuing to beat for some time after respiration has ceased.

Solutions of cocaine are not stable and fungi develop rapidly, so that solutions for use have to be preserved by antiseptics or made freshly for each operation.

Eucaine solutions are stable and can be sterilized by boiling. Cocaine cannot be boiled without decomposition. Eucaine has a tendency to harden the tissue, produces some hyperemia, generally causes some swelling which is painless and harmless. Eucaine has no effect upon the pupil of the eye. Cocaine causes dilation.

And we find the hypodermatic use of alkaloids is a distinctly dangerous method of rendering the operation of tooth extraction painless.—*Pacific Dental Gazette.*

A CASE OF LOCALIZED AND REFLEX APICAL PERICEMENTITIS DUE TO SEPTIC INFECTION OF A PULP.

BY OTTO E. INGLIS, D.D.S.

In a previous article the writer mentioned a case in which arterial hyperæmia of the pulp of a right upper bicuspid attended by the usual response to thermal changes was due to the inflammation of the pulp of a right upper third molar.

The pulp of the third molar was found partly dead, and the devitalization of the canal filaments relieved the condition in the pulp of the bicuspid.

In a case recently presented a young lady related that the right lower first molar had been crowned two years before, and up to within two weeks had been comfortable. Trouble seemed to immediately follow the filling by her former dentist of a large mesio-occlusal cavity in the right lower second molar with amalgam.

The nature of the trouble was that both the first and second molar simultaneously became more and more sore until the annoyance was constant and mastication upon the right side unbearable. The response to both intense heat and cold was delayed in both teeth. The tenderness upon percussion was about the same in each tooth, and the third molar and second bicuspid were each somewhat irriated pericementally. Differentiation seeming impossible, a drill and bur were used to perforate the amalgam filling and to expose the dentine in the neighborhood of the pulp horn of the second molar. Some slight sensitivity was noted and the drilling stopped and the patient closely questioned. As she averred a knowledge of a new sensation, ethyl chlorid was again tried and a response more pronounced than at first obtained. As this seemed to exclude the second molar the gold crown was removed from the first molar and the discovery made that the cement which secured it to the tooth was in direct contact with dentin which should overlie the pulp horn. Thermal test produced a somewhat delayed response. The location of the horn was explored with a drill, which entered the pulp cavity without pain or particular evidence of pus. The condition was apparently that of a decomposed or gangrenous pulp mass.

Exploration of the canals discovered vitality in each of the pulp filaments at locations corresponding to the entrance of the canals.

The pulp cavity was slightly enlarged and syringed out. A thread of cotton saturated with phenol-camphor to which menthol had been added was loosely placed against the vital remnants of the pulp with a view to their sedation and sterilization. This was covered with cotton and sandarac. The opening in the amalgam filling in the second molar was now refilled and the case dismissed. After a short time (not over an hour) all tenderness had disappeared from both molars, which could be freely tapped after twenty-four hours. Arsenic was now applied to the first molar pulp filaments.

This case seems to have differed from the first described in that the reflex hyperæmia was produced in the pericementum instead of the pulp, while the causes in the two cases were as nearly alike in character and extent as one could judge from a clinical experience with them.

Such cases seem to prove beyond all peradventure that the dental pulp is capable of producing a reflex hyperæmia in the pulp of other teeth and in the pericementum of its own tooth and of another tooth.

This being the case the reference of apical pericementitis following arsenical applications to the arsenic and of that following death of the pulp from abscess or confinement of gases during suppuration of the pulp to direct action of micro organisms upon the apical tissues must be regarded as at least possibly erroneous.

In the case of the arsenical application a slight apical pericementitis often follows the application, but subsides upon treatment purely external to the tooth and without removal of the arsenic. Again, it is noted that in suppuration of the pulp such irritation as follows the stasis in the pulp has a tendency to subside even when untreated.

The writer argues that in both cases the condition is as purely a reflex as is the establishment of arterial hyperæmia of the pulp with its concomitant symptoms as the result of hyperæmia of the apical tissues produced by a blow of moderate severity.—*Stomatologist.*

PRECIPITATED SILVER TO HASTEN SETTING OF AMALGAM.

BY J. MORGAN HOWE.

I have found precipitated silver a very effective and convenient agent for hardening amalgam fillings and absorbing the surplus mercury pressed to the surface by the process of packing. Its affinity for mercury is as great as that of freshly annealed crystal gold. Although the crystals are so small that it is practically a powder, it can be applied to the surface of most fillings quite as conveniently as pieces of crystal gold. The most serious objection I know of to its employment is its very low cost. In my own use of it I apply it to fillings in lower teeth generally with tweezers, or a small scoop, and to those in upper teeth by carrying it to place on the point of the finger. None of the silver should be allowed to remain on the surface, as it would be likely to discolor. If the filling is first made more than flush, and cut down and burnished, after hardening, the best results will be obtained.—*Dental Brief.*

THE PREPARATION OF CAVITIES IN PORCELAIN TEETH.

FRED G. BAIRD.

The only instruments necessary in performing this operation are two rubber and corundum discs a little smaller than a dime, one with a blunt edge, the other sharp and thin.

For a labio approximal filling cut with the blunt disc a shallow saucer-shaped cavity, extending it in the form of a broad shallow groove across the proximal surface of the tooth, the groove being made a little wider on the labial than on the lingual aspect. Make a slight undercut in the groove by using the thin disc inclined at different angles.

Start the filling in the groove by using hand pressure.

For a filling on the labial surface of a tooth, cut a shallow saucer-shaped cavity as before, then with the thin disc make the necessary undercut.

In all cases the positions of the pins must be noted in order to avoid weakening the tooth.

The advantages of this method over other methods are: First, saving of time and money, as each practitioner can prepare cavities in his office in from three to five minutes; second, ease in inserting fillings, as there are no frail margins to chip; third, artistic results secured, as no gold shows through the translucent porcelain around the margins of the fillings, and fillings can be inserted in any position desired.—*Pacific Gazette.*

SUGGESTIONS

To Avoid Repolishing an Entire Gold Piece after Repairing.—*Zahnkunst* (quoted in *Archiv für Zahnheilkunde*) advises the following procedure in cases where repairs have to be made: The plate after being painted with a solution of borax, which is allowed to dry, is invested and soldered. After the soldering the plate is boiled in a weak solution of sulphuric acid. By this method, it is claimed, only the soldering part will have to be repolished.—*Cosmos.*

Sterilizing the Mouth-Mirror.—Sodium peroxid is an immediate and perfect sterilizer, applicable to almost anything, and especially to the mouth-mirror and other things which cannot be boiled.—*Items of Interest.*

Overbaking of Porcelain—Dr. Capon.—There is a tendency among operators to overbake porcelain fillings; this should be guarded against, as it not only takes the color out of the porcelain, but takes the life out of it and renders it porous. —*Cosmos.*

To Change the Shade of Porcelian—W. A. Mills.—Any porcelain can be changed to the appearance that a dead tooth has by burning a little sulphur on it. This gasses the porcelain and deadens the appearance. He often treats a tooth this way when he desires to get this appearance.—*Cosmos.*

Care in Polishing Ground Enamel—F. W. Low.—Care should be taken in polishing teeth from which enamel has been ground. Grind first with a stone and follow with pumice and tin oxide, which gives a superior polish.

Tin as a Root Filling Material—T. D. Shumway.—There can be no question that tin in the root canal is as bland as it would be if encysted in the muscular tissue. Clinical experience has demonstrated that a root properly filled with tin will remain perfectly odorless, while one filled in the same manner with cotton and cement, or gutta-percha, almost invariably gives off a most offensive odor on being removed. This odor is of the kind called "brassy" and is, no doubt, largely due to a decomposition of the amorphous substance which has been arrested in its metamorphosis. A similar odor is often detected on removing a cohesive gold filling which has been placed in a living tooth with great care.—*Extract from Digesi.*

Use of Coffee Influences Pyorrhea Alveolaris:—J. B. Ernsmere.—The use of coffee hinders the elimination of tissue waste, and its use is therefore injurious in the presence of gout or rheumatism, and it is always forbidden to the patient suffering from either disease, and *should be forbidden by the dentist to the patient whom he is treating for pyorrhea.—Cosmos.*

Alcohol an Antidote to Carbolic Acid Burns—H. A. Allen.—Bathing the parts injured by carbolic acid affords immediate relief from pain, and the skin soon assumes a healthy color. This widens the field of usefulness of this most powerful germicide, as it enables us to use its full strength without danger of caustic effect.

To Give Gold a Fine Finish—H. H. Johnson.—After scratches have been removed with pumice, nothing is so effective as oxid of zinc on a brush wheel. It leaves a beautiful, lustrous polish.

A Root Canal Filling.—Dr. C. P. Pruyn recommends the use of sandarac varnish and gutta-percha for filling root canals.

Pay Attention to Details—H. J. Goslee.—The reason why so many cannot do successful plate work is because they do not observe the details necessary in the preparation of the impression, and the model, after securing them, and no denture can be perfectly adapted without observing such detail very, very closely, to obtain an equalization of pressure, which is so essential.—*Review.*

PERFECT BACKING.—Grind the facing (if a front tooth) to a feather edge, using fine stone; adapt pure gold, No. 32, to back; punch holes for pins; put back on tooth; roll up several thicknesses of rubber dam and swage the tooth and backing between the heavy folds of dam using horn mallet. The result is a perfect fitting backing.—*American Dentist.*

ADAPTING LOGAN CROWNS.—Take White's thin articulating paper, cut a disk a little larger than the circumference of a Logan crown; pierce the center of the disk with pin of crown; place on the root with firm pressure and it will show the point of contact so a perfect joint can be obtained.—*American Dentist.*

REMOVING DEPOSITS FROM PLATES.—Ammonia is better than soap for removing these discolorations.

MANIPULATION OF GUTTA-PERCHA USED FOR SEPARATING—R. OTTOLENGUI.—If when using gutta-percha for separating purposes the material is softened, it is often difficult to fix it tightly between the teeth. Cut a piece from a sheet and press it into place cold, smooth and trim into shape with warm burnishers.—*American Dentist.*

A METHOD OF WORKING CEMENT.—To insure a smooth, hard cement filling in proximal surfaces, particularly where the labial and lingual walls are to be restored, pass a thin piece of mica or celluloid matrix, it first having been slightly oiled, between the teeth, and, after introducing the cement into the cavity, press the mica or celluloid matrix firmly over the cavity and hold in this position for a few moments. The pressure makes a more solid filling. The oil prevents the cement sticking to the matrix, and the matrix gives the proper space between the teeth.—*American Dentist.*

A New Anchorage for Partial Dentures—G. W. Pitts.—Thin platinum is first burnished around the tooth to be clasped, and extended slightly into the sulci. The clasp is fitted over this platinum, the two waxed together, removed and solder is run between them and over the platinum projecting between the cusps.

The idea is the platinum may be perfectly adapted to the tooth, whereas clasp metals could not be, and that prevention of crowding upon the tissues is secured by the projections upon occlusal surface.—*The Bur.*

To Prevent Change of Shade in Porcelain—D. W. Stanton.—If, before they are backed ready for investing, porcelain facings are boiled for a minute in sulphuric acid and water, equal parts, and then backed with pure gold, there will be very little trouble with their changing color.—*Brief.*

How to Clean Files—W. H. Wheat.—Chloroform will clean files that have become packed and full of rubber from trimming plates. Apply chloroform and clean with stiff brush. I have never seen it noted in any of the journals or heard it mentioned by any dentist or in college. —*Dental Hints.*

A Pulp Capping Material—Dr. Starr.—Use the oxyphosphate of zinc, diluting the fluid with oil of cloves, or with water, or any mild antiseptic fluid to reduce the irritating effect of the phosphoric acid solution. Distilled water, or plain water with an equal quantity of the phosphoric acid solution will, when mixed with the cement powder to a creamy consistence, give excellent results if applied directly to the pulp in such a way as to cause no pressure on that organ.—*Cosmos.*

Carbolic Acid Tempers Steel Tools, according to the *Engineer,* which quotes from a French source. M. Levat, who recommends its use for this purpose, tempered one cold chisel in water, and another in a solution of carbolic acid, after both had been heated to a cherry red. The chisels were then set to work on extra hard wrought iron, and it was found that the one tempered in water became notched after a short time, whilst the one tempered in carbolic acid remained perfectly intact. A second test was made with two puddled steel bars, which were heated to white heat and tempered in water and carbolic acid respectively. The bar tempered in carbolic acid showed a much finer fracture, which reflected like a mirror when filed, and its carbon contents were not increased, but in the bending test it showed more elasticity and pliability than the other, while its hardness made it more suitable for tools.

SENSITIVENESS AT CERVICAL PORTION OF TEETH.—Dry the tooth, heat a burnisher quite hot and burnish the sensitive part.—*American Dental Weekly.*

TO PREVENT PAIN WHEN INSERTING THE HYPODERMIC NEEDLE.—The spot where the needle is expected to enter is touched with a toothpick dipped in strong carbolic acid. A white spot immediately appears, due to coagulation of the albumin in the tissues. Shortly after, a perfect anaesthesia of the spot is manifest, and the hypodermic needle can be pushed through the skin or mucous membrane without pain at this point and the infiltration of the tissues begun. If a large arc is to be injected, several spots are marked with the toothpick dipped in the strong carbolic acid, the needle being inserted through these points.—*Medical Standard.*

CARE IN THE USE OF FORMALDEHYDE—DR. HOFHEINZ says care is necessary in keeping formaldehyde from the soft tissues of the mouth. He reports a case where the formaldehyde was absorbed by the ligatures used to tie the rubber dam, causing serious destruction to the gums. He advocates coating the ligatures with collodion instead of wax.

FINDING DECAY MARKINGS ON TEETH—J. J. MADDEN.—For some time I have made use of the 3 per cent. and 25 per cent. solutions of pyrozone as a preparatory means of finding the extent of the chemical action upon the enamel near the cervical border, and with satisfaction in that some of the markings due to decay became far better defined under the action of the oxygen.—*Cosmos.*

Marking Perfect Joints to Richmond Crowns—A. C. McCurdy.—Where the solder has failed to flow and close the joints, make an amalgam of gold foil and mercury and pack into the joint. Place the piece in dry plaster and set over Bunsen burner to heat up and drive off the mercury, after which burnish and polish.—*Cosmos.*

Take Impression Before Extracting Second Molars—H. B. Huver.—It is very necessary to take impressions of the mouth when thinking of extracting the second molar, so you may be sure of what is best to do. Physicians often diagnose necrosed bone when in truth there is an impacted third molar. All operations in this region should be done with all antiseptic precautions, as it is extremely liable to infection, and when this does occur it is very dangerous.—*Cosmos.*

To Anneal Steel.—According to the *English Mechanic,* a very good way to anneal a small piece of steel is to heat it up in a forge as slowly as possible; then take two boards, lay the hot steel between them, and screw them up in a vice. As the steel is hot it sinks into the wood and becomes firmly imbedded in an almost air-tight charcoal bed, and when taken out cold it will be found to be fairly soft; to repeat this process will make it as soft as could be desired.

EDITORIAL

THE NEW DENTIST.

Many young men who have been fitting themselves for their life's vocation, dentistry, have just completed the college course and are entering the profession.

Many of these graduates will locate in cities and towns containing other dentists. One may invade your territory, but who has a better right? All of us had to make a start. All of us have learned many things since, through experience. The new dentist may have an exalted idea of his knowledge, but that idea may change as time goes on. What kind of competitor he will make depends somewhat on how you welcome him and treat him yourself.

Jealousy and envy have done more to hinder the progress of dentistry than anything else. To defame another's character or scoff at his work, is shallowness personified.

Is it not better to keep his good will and sustain your own prices for professional services than start a cut-rate war, like the "sheeny," on your new competitor? Or, better to have the new dentist's good will and friendship than have him retaliate by keeping the public informed about what an old fossil you are and how antiquated your methods?

Welcome the new dentist. Cultivate his friendship. Assure him you will be his friend and helper so long as he practices in a legitimate way. Help him to start aright. If he has modern methods that are better than your own, learn of him. See that your favorite methods do not become obsolete.

"One good turn deserves another," as the old saying goes, and usually brings its reward. The reward in your case may come in later years when you need it more, and then you will appreciate more fully the advantages of a fraternal friendship.

CHANGE OF DATES OF NATIONAL DENTAL ASSOCIATION.

To accommodate a number of members who desire to attend the American Dental Society of Europe and the International Dental Federation in Stockholm, the time of meeting of the National Dental Association has been changed to July 28, 29, 30, 31, 1902.

Niagara Falls is a favorite place for meeting, and those held there in the past have been most successful.

By letters received we learn also that the time of the Stockholm meetings has been changed to August 15th, which will make it possible, for those who desire, to attend both the National at Niagara Falls and the two meetings in Stockholm.

CORRESPONDENCE

QUESTION ANSWERED.

In answer to W. E. Stewart's question in April SUMMARY, as to what it is that hurts his patient when he probes into the cavity, I would open up the cavity until I could see for myself what *"that is."* In elderly people it may be, and probably is, a thin film of pulp, covering osteo-dentine. Then apply carbolic acid and a few crystals of cocaine, and as soon as possible commence to drill it out. Keep this up until you reach the apex. Having reached the apex of all roots, make them clean and fill them as follows:

No. 1.

℞

Hydronaphthol	20 grs.
Alcohol	¾ oz.
Oil Cloves	¼ oz.

Mix.

No. 2.

℞

Hydronaphthol	1 part
Oxide of Zinc	2 parts

Mix to paste with No. 1 and fill the roots, having first washed them with No. 1. Then press a thin shaving of red gutta-percha into it, to force it to the apex. Now mix some of No. 2 with glacial phosphoric acid, which will make a hydronaphthol cement, and fill the pulp chamber.

The acid and oxide of zinc used is in every office.

Do not forget to paint the gum over the tooth with iodine and aconite, equal parts. If this does not save the tooth send it to a young dentist.

You will find it a good plan to wipe out all deep cavities with No. 1 before filling. The hydronaphthol cement is the best pulp-capping ever used by me, and the No. 1 mix. is good for pyorrhea.

Saginaw, Mich. DR. H. S. MANN.

SOCIETY

AMERICAN SOCIETY OF ORTHODONTISTS.

The second annual meeting of the American Society of Orthodontists will be held in Philadelphia, October 8, 9, 10. Complete announcement in due time.

Milton T. Watson,
270 Woodward Ave., Detroit. *Secretary.*

MISSOURI STATE DENTAL ASSOCIATION.

The thirty-eighth annual session of the Missouri State Dental Association will convene at Jefferson City, May 21, 22, and 23, 1902. The literary program will be held in the Legislative Hall, and the clinics, beginning at 10 a. m. the first day, will be held at the Penitentiary, where an abundance of clinical material can be had. Special railroad and hotel rates have been secured.

The following is a partial program:

Addresses and Essays.—1. Burton Lee Thrope, St. Louis: President's annual address. 2. Wm. Everett Griswold, New York: "The Griswold System of Removable Bridge Work." 3. Frederick Brown Moorhead, Chicago: "Alveolar Abscess, its Sequelæ and Surgical Treatment." 4. D. R. Stubblefield: Nashville, Tenn.: "Metallurgy." 5. J. D. Patterson, Kansas City: "Etiology of Dental Disease." 6. D. F. Luckey, D.V.S., Columbia (Missouri State Board of Agriculture): "Comparative Anatomy of the Teeth." 7. J. Robert Megraw, Fayette:

"Dental Prescriptions." 8. Millard Lewis Lipscomb, A.M. (Missouri State University), Columbia: "The Practical Application of Electricity in Surgery and Kindred Subjects." 9. S C. A. Rubey, Clinton: "Some State Board Questions and the Answers They Receive." 10. James W. Hull, Kansas City: "Conservatism in Dentistry." 11. Herman Prinz, St. Louis: "Some of the Newer Dental Remedies." 12. Charles Gilbert Chaddock, M.D., St. Louis: "Neurology." 13. W. W. Flora, Carthage: "Use and Abuse of Crown and Bridge Work." 14. Otto J. Fruth, St. Louis: "Report of Committee on New Inventions and Appliances." 15. H. S. Vaughn, Kansas City: "Orthodontia."

Clinics.—M. C. Marshall, St. Louis, supervisor. 1. Edward G. Snodgrass, Keokuk: Step filling, using Watts' crystal gold. 2. Frederick Brown Moorhead, Chicago: Surgical treatment of alveolar abscess. 3. Wm. Everett Griswold, New York: The Griswold system of removable bridge work; constructing a practical case in the mouth. 4. R. C. Brophy, Chicago: Porcelain work, baking with gasoline and gas furnaces. 5. B. Q. Stevens, Hannibal: Table clinic—"My method of root-filling with gutta-percha and wood points and taking impressions of enlarged or undeveloped root-canals." 6. A. J. Prosser, St. Louis: Methods of filling with cohesive and non-cohesive gold and tin foils. 7. F. M. Fulkerson, Sedalia: Immediate and painless pulp-extirpation in anterior teeth. 8. R. H. Mace, St. Louis: The use of gold inlays in deciduous and frail teeth. 9. Hubert P. Neeper, Canton; Edward G. Snodgrass, Keokuk: Mounting Logan crown with cap. 10. John G. Harper, St. Louis: Table clinic—"Some odds and ends." 11. F. B. Jahr, Kansas City: Preparing cavities in porcelain teeth. 12. J. Robert Megraw, Fayette: Treatment of alveolar abscess with fistulous opening, and immediate root-filling. 13. M. R. Windhorst, St. Louis: Gold fillings. 14. F. H. Achelpohl, St. Charles: The use of Teague's cavity cap disks. 15. J. H. Kennerly, St. Louis: Taking impressions of the mouth. 16. J. Denzil Bowles, Tipton: New treatment for epulis tumors, oral ulcers, etc. 17. D. O. M. LeCron, St. Louis: Porcelain inlays.

18. A. J. Prosser, St. Louis: Gold inlays, swaged and burnished. 19. W. F. A. Schultz, St. Louis: Operation for necrosis. 20. R. R. Vaughn, St. Louis: Demonstrating use of Archite cement. 21. Geo. H. Mathae, St. Louis: Extracting with nitrous oxid gas, demonstrating new universal lower forceps. 22. A. F. Strange, St. Louis: Obturator for cleft palate. 23. R. N. LeCron, St. Louis: Construction of porcelain bridge. 24. V. H. Frederick, St. Louis: Bridge work with removable facings. 25. J. S. Letord, Kansas City: Demonstrating a new rheostat for 110-volt alternating current. 26. C. D. Lukens, St. Louis: Orthodontia. 27. F. F. Fletcher, St. Louis: "Something." 28. James W. Hull, Kansas City: Immediate and painless checking of hemorrhage. 29. Geo. H. Gibson, St. Louis: Cleansing a set of teeth. 30. Orme H. Manhard, St. Louis: A method of retaining loose teeth with a splint. 31. H. S. Vaughn, Kansas City: Demonstration of the Jackson crib system for irregularities. 32. W. L. Reed, Mexico: Articulated natural teeth to demonstrate cavity preparation. 33. Henry B. Purl, Kirksville; Black's method of step cavity preparation. 34. W. W. Flora, Carthage: Richmond crown. 35. Herman Prinz, St. Louis: Demonstrations of some of the newer dental remedies. 36. L. A. Young, St. Louis: Adjusting rubber dam and filling root-canals, demonstrating new rubber-dam holder and aseptic broaches. 37. J. S. Letord, Kansas City: Fillings with Vernon's gold and Eoff's gold and platinum. 38. James F. Austin, St. Louis: Cavity preparation for alloy and a method of finishing alloy fillings.

Geo. W. Tainter. Jr., Jefferson City,
C. D. Lukens, St. Louis,
J. C. Pasqueth, Mexico,
Executive Committee.

THE NORTHERN OHIO DENTAL SOCIETY.

The Northern Ohio Dental Society will hold its forty-third annual meeting at Cleveland, June 9th, 10th and 11th.

NATIONAL DENTAL ASSOCIATION.

In accordance with the result of the recent postal card vote, the date of the coming meeting of the National Dental Association will be changed from the first Tuesday of August to Monday, July 28th, and will continue four days.

A. H. Peck, *Recording Secretary.*

MICHIGAN DENTAL ASSOCIATION.

The annual meeting of the Michigan Dental Association will be held in Grand Rapids June 9, 10, 11, 1902. Special clinical features will be our aim and the meeting will be a "hummer."

Frank H. Essig, *Secretary.*

CHICAGO DENTAL SOCIETY.

Officers of the Chicago Dental Society for 1902-1903, elected at the annual meeting, held in Schiller Hall, Tuesday evening, April 1st, 1902:

President, Elgin MaWhinney; first vice-president, H. J. Goslee; second vice-president, F. B. Noyes; secretary, Winthrop Girling; corresponding secretary, C. S. Bigelow; treasurer, E. R. Carpenter; librarian, H. W. Sale; member board of directors, Edmund Noyes; board of censors, W. V.-B. Ames, chairman, C. N. Johnson, A. W. Harlan.

C. S. BIGELOW,
Corresponding Secretary.

AFTERMATH

PERSONAL AND MISCELLANY.

MAYOR BURKHART.—Dr. H. J. Burkhart, ex-president of the National Dental Association, has been elected mayor of Batavia, New York.

Dr. Burkhart's political knowledge and executive ability fit him admirably for a successful term. He assures visiting dentists special protection.

INCREASED FACILITIES REQUIRED.—The demand for the Prophylactic tooth brush has outgrown the capacity of the plant at Florence, Mass. The owners, the Florence Manufacturing Co., are spending a large amount of money increasing their facilities to accommodate the trade. They have an article of undoubted merit and deserve the success that has come to them.

CROWN COMPANY AGAIN RUN.—Among the many suits brought by the International Tooth Crown Co. against the members of the Dental Protective Association some months ago were several in the State of New Jersey. One of these same being against Dr. J. S. Vinson, of Newark, was docketed for trial this month, and we supposed the Crown Co. expected to prosecute the case, as it was the only one in that state in which they had taken testimony. The attorneys of the Protective Association prepared the defense, but we learned last week, greatly to our surprise, that the Crown Co. had paid the costs of the case and had it dismissed, which is positive proof that they were afraid to have it come to trial. The Crown Co. are therefore confined at the present time to the state of New York, and Judge Lacombe, ruling in that Federal District, has refused to hear any more cases until the Court of Appeals has passed on the one in which he recently gave a decision. It cannot be definitely stated when this decision will be handed down. —*Dental Digest.*

What Makes a Dental Journal Valuable?—The true value of a dental journal depends almost wholly on the amount of truly practical information on live subjects it can furnish to its readers in the most readily available form. It is a noticeable fact that at dental society meetings long scientific papers dealing with the technicalities of abstruse subjects call forth but little comment beyond an expression of appreciation of the amount of labor performed by the essayist, while the report of a practical clinic or the concise description of new or valuable operative procedure calls forth many expressions of approval and leads up to the reminiscent stage of society discussions, often of value from the many practical ideas expressed. What is true of dental societies is true also of dental journals, and as our journals depend largely on our societies for their contributions, it will be well for the health of both that the practical feature of contributions be always kept in mind.—*Editorial Pacific Dental Gazette.*

Dr. R. C. Brophy is now editor of *The Bur,* Dr. C. N. Johnson having resigned the position to accept the editorship of the *Dental Review.* We welcome you, Brother Brophy.

Office Pointers.—Seat your patients comfortably; adjust head and foot rests properly, and place chair at most suitable angle and elevation for your own comfort during the work on hand. Let the patient know (not too ostentatiously) that your hands are washed. Avoid odorous soap. Also do not use rancid oil on your engine handpiece. In cold weather, to avoid thermal shock, heat instruments and medicaments to about body temperature. Provide plenty of clean linen. Hold between patient's lips and instrument handles, etc., a small napkin if dam is not used. When using dam place small napkin between it and lower lip to absorb overflow of saliva, also place one between dam holder and cheek to prevent marking.—*Stomatologist.*

HAS THIS IDEA EVER OCCURRED TO YOU BEFORE?—At a meeting of the American Dental Convention, held in August, 1857, a member, Dr. Leech, residence not given, made the following observation: If you take a piece of steel and make a slight mark across it with a file, you take from its strength more than you would if you should cut down the whole instrument to that size, for the reason that in applying a bending force to it, the whole effect of the force is expended over the point cut by the file, whereas with a uniform reduction of surface the bending force is distributed over the entire length of the piece of steel. Hence it is important that every instrument should have as polished and smooth a surface as possible, and that the angle should not be too abruptly turned; an angle turned with a perfect corner is not so strong as one that has a slight curve. In forming steel into instruments, as true a taper should be carried back to the cutting point into the socket or handle as possible, so that the strain will become gradual all along to the point. If a shoulder is cut down to get a small size the spring is closed at that point and a strain will wrench it off.—*Cosmos.*

A WELL KNOWN AUTHOR.—Dr. Rodriguez Ottolengui, who is the author of half a dozen detective stories that have been considered among the best of their class, is a man of varied attainments. He is a dentist by profession, in active practice in this city, and for several years was one of the most active and aggressive members of the League of American Wheelmen, being an enthusiastic bicyclist himself. Another story of detective interest is expected before long from his pen, which is to be published, as his others have been, by G. P. Putnam's Sons. His previous novels have been "An Artist in Crime," "A Conflict of Evidence," "A Modern Wizard," "The Crime of the Century," and "Final Proof."—*New York Tribune Review.*

DECAY OF THE TEETH FROM THE USE OF ROLLER FLOUR.—At a recent meeting of the British Dental Association, T. G.

Read argued that decay of the teeth was caused by chemical changes which take place in the mouth during the mastication of bread composed of roller flour. He contends that the increase in dental caries during the past forty years has been due to roller milling having largely replaced stone milling, and he argues that modern bread itself directly causes the destruction of tooth tissue, as there is a greater amount of acid generated in the mouth during the mastication of bread composed of roller flour than when composed of stone-milled flour. It is asserted that wherever the roller mill is in operation carious teeth are found, instead of the sound ones of the days of the stone mill.

White Wood as a Cure for the Tobacco Habit.—According to the *Eclectic Medical Journal,* the Liriodendron tulipifera, also known under the names of white poplar and white wood, is probably the largest of the lumber-producing trees native to this country, excepting, of course, the giants of California. The inner bark has been used to a considerable extent, in years gone by, as a domestic remedy for malarial conditions, or infused in whisky as a tonic or bitters. This bark also constitutes a very efficient cure for the tobacco habit. The fresh, inner bark may be chewed, or the powdered bark may be mixed with sugar and extract of licorice, and pressed into a tablet, say of five grains of the bark. These tablets are to be allowed to dissolve in the mouth whenever the desire comes to take a chew or a smoke. The man who made the discovery cured himself, and he was a most inveterate chewer. He also gave it to dozens of his friends, with fine results, finally selling his receipe to a large drug house for fifteen hundred dollars. While the remedy is cheap, it is also harmless, and at the same time a fine stomachic, resembling gentian in its action upon the gastric organs.

Something About Asbestos.—For fifty years I have had occasion to use asbestos. For forty years I had procured my supply from one house—a short, coarse fiber, such as is the grade needed for continuous gum work, and for which I paid 37 cents per pound.

About ten years ago the supply of this material failed and no more could be found. I hunted through New York City for some but there was nothing better to be found than the long, silky fiber, the worst thing to mix with plaster imaginable.

About a year later I found an asbestos store in Chicago dealing in an article the very best I have ever seen for dental use. I used to buy it in five-pound lots, and took pains to call attention of dental supply houses to the article, but they did not avail themselves of it.

Alas. I found on my return from Europe in 1900 that the store had been sold out, but by diligent search ascertained that the same article could be had in Milwaukee, so ordered 100 pounds, turning over part of it to H. D. Justi's concern, where it can now be had, and at much lower price than the old-time rate.—*L. P. Haskell in Review.*

THE DENTAL SUMMARY

VOL. XXII JUNE, 1902 NO. 6

CONTRIBUTIONS.

STERILIZATION OF INSTRUMENTS AND USE OF DISTILLED WATER IN ORAL CAVITY.

BY W. A. BARBER, D.D.S., SPRINGFIELD, O.

The reigning power in the healing art for the past few years has been bacteriology. Every few months the medical world has been aroused by some wonderful discovery of some new specific germ, hence a fresh incentive to combat disease.

No branch of medicine has more quickly grasped the value given to the practitioner by recent bacteriological research than dentistry. Nothing can be more convincing along this line than to contrast the treatment of pulpless teeth, as it was generally practiced twenty-five years ago, with the recognized treatment of the present. At that time any work involving the root canals of a tooth was dreaded by every practitioner, while now all such work is commenced and finished with ease and certainty of success, that must follow when due precaution is taken to eliminate every source of infection.

The enormous increase in the number of teeth which are preserved to human kind in this twentieth century, can be traced directly to the stimulus gained from the results of bacteriological research. The study of bacteriology is enforced in the curriculum of our most advanced dental colleges. The growing importance of this subject, in relation to dental pathology, has necessitated certain modifications in the technique of nearly all dental operations. A clear knowledge of the practical details of bacterial life has become essential for successful dental practice, just as it has for all branches of surgery.

The graduate from the dental college of to-day is equipped with information that will not only enable him to correctly apply the most improved methods for preventing and combating bacterial action, and to develop an efficient system of antiseptic technique, in connection with his practice, but he is also trained in methods that will make it possible for him to study the bacterial factor, which is the cause of diseased conditions in special cases arising in his practice.

The prominence that is given this great subject by the scientific minds of the day is calculated to startle and arouse, the dental practitioner of twenty, or even five years ago, to the necessity of sterilizing every instrument that has been used upon a patient.

An intelligent and discriminating public, as well as thoughtful and scientific professions, demand a radical and permanent change in office methods in daily practice, and that change is from a careless, slip-shod system, to one founded upon modern and scientific discoveries.

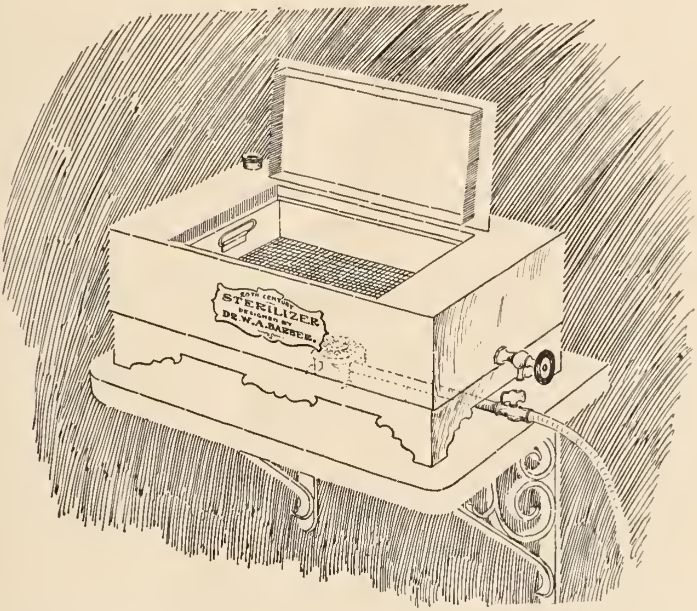
I shall take it for granted no one will take issue with statements made in regard to conducting a dental practice on lines in accord with our present knowledge of the dangers that may be feared from various micro-organisms, and shall present a few practical points along this line.

The writer has had an opportunity of visiting a large number of operating rooms of prominent men, and have seen explorers, scalers, forceps and almost all kinds of instruments used in mouth after mouth, with only a superficial rinsing in water, and drying intervening. That is not sterilization.

It has long been a favorite idea among certain medical men that dentists are spreading infection, particularly syphilitic infection, broadcast.

Can you blame them, when you realize how great a number are afflicted with this disease, and the fact that adequate means for the sterilization of instruments are not employed in a great many dental offices? There are, undoubtedly, grounds for criticism.

One reason for failure to properly sterilize their instruments is the lack of an inexpensive and convenient method of sterilization. This has operated more to prevent improvement in this respect than anything else.



Again, we find dentists who use the utmost care in regard to instruments, will lacerate tissue in a mouth, and use water from a hydrant to wash out the mouth after extracting, or other operations necessitating laceration. Does the surgeon operate in such haphazard way? Certainly not.

We cannot even touch any point in the oral cavity without our instruments becoming coated with a layer of infectious material.

We can never know what virus may be clinging to our instruments, nor can we, with certainty, predict the result of a wound upon the cheek, the gums, or lips with an unclean instrument.

How easy a thing for a dentist who is uncleanly, and who, for instance, has used his instruments on a diphtheritic patient and failed to make them surgically clean, to inoculate some other patient, upon whom he uses the same instrument. In like manner, pus germs may readily be carried from patient to patient.

I shall first speak of the sterilization of instruments. Some dentists make a practice of washing in cold water and carefully drying all instruments after every operation; others immerse them in hot or boiling water; others dip them in some fluid possessing supposed germicidal properties; but bacteriology demonstrates to us that such methods do not necessarily accomplish sterilization.

How, then, can it be accomplished, or how shall bacteria be destroyed? Muir and Ritchie say that all bacteria can be killed, either by heat, drying or starvation, or by chemical agents. Of the four methods of destroying bacteria, only two can be utilized for sterilizing instruments, namely: heat and chemical action. The last named does not meet all requirements of a sterilizing agent for a dental office, not only because of the time required in some cases for complete sterilization, but because of the corrosive action on steel instruments.

All bacteria are destroyed by heat, and this method has met with great favor on account of many advantages it possess over other methods.

It would be far from necessary to elaborate upon the question of heat sterilization of instruments used in all cases. If you keep in touch with the methods of the best surgeons, you will find they consider boiling the instruments the only sure method of sterilization. There should be no suspected cases. All treating alike, acknowledging the utter impossibility of knowing positively whether a person is free from an infectious disease.

Cleanliness, above all things, is necessary to a successful treatment of all diseased conditions of tissue. Not ordinary cleanliness, in its general acceptation, but surgical cleanliness, and there is a vast difference between them; to be surgically clean is to be germ free.

Dr. W. D. Miller says there is no department of surgery which demands more thorough sterilization and recommends an exposure of from three to five minutes to a boiling, one or two per cent. solution of soda, for sterilizing dental instruments.

Upon entering the practice of dentistry, I searched in vain for a sterilizer that would meet my requirements. They all belonged, apparently, in the laboratory equipment, and I did not consider that the proper place for a dental sterilizer. The modern sterilizer of a dentist's outfit should be as good theoretically as it is practically. You should not have to tell your patients you sterilize your instruments, you have enough to tell them along lines of vast importance, and about things you are unable to make a practical demonstration of.

Another feature I realized the necessity of, hot distilled water at all times for use in the oral cavity, and I did considerable experimenting until I obtained a sterilizer combined with a distilled water attachment, and I have nothing in my outfit that has given me as much satisfaction as this sterilizer with a distilled water tank. Distilled water tank entirely separate, no chance for water to be contaminated, and always hot; same burner used on bracket table answers for heating, and when burner is not in use, keep small flame under sterilizing pan, compact, neat, and practical.

The question of the value of asepsis and antisepsis in all operations in the oral cavity is no longer one of controversy. The statistics of surgical operations of all kinds before the days of Lister, contrasted with those of the last two decades, are sufficient proof of the value of asepsis and antisepsis in surgery.

The best dental surgeons the world over admit their value, and attempt, as far as possible, to carry out the principles of this method of treatment.

Leading men in our profession, such as Black, Williams, and a host of others, realize this fact, and are devoting their time and energy along this line, so that in a short time a dentist who does not understand this subject will be regarded as a "back number," and will be placed in the category with those who yet fail to recognize the advantages of antiseptic dentistry. With a recognition of this established science guiding us in our future investigations and practical work, what triumphs may we not hope for?

Who knows but that by early preventive treatment, caries may be a thing of the past, the inflammatory diseases of tooth environments crushed in their incipiency.

The bug-bear of dentistry, Rigg's disease, eradicated, and even the crowning of a tooth cease to be an art, by the conversion of dentistry into a preventive science.

DIAGNOSIS IN DENTAL PRACTICE.

BY W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, O.

It requires no keen observation to see that with the advancement of knowledge in dentistry, diagnosis is becoming easier, apparently.

It is of less difficulty to the diagnostician who has cultivated an acumen by his own knowledge and efforts, to gain facts by clinical experience. So, when remarking that diagnosis is easy, it was qualified by the word "apparently," for, as already stated, the power of diagnosis is gained only by hard work. It is true, however, that there is inborn in some individuals an instinctive process of reasoning that allows penetration of the processes of nature which in other individuals does not awaken that sympathy. We hear sometimes of those who have been the seventh son or daughter of the seventh child, but to these penetrators of mysteries we give no special credence, for success in any attainment costs time and money. Now this opens up the question of the terms of this knowledge. The price may be little or great. It will depend upon the quality of the goods. When a consultation is held in event of sickness, the expenditure of money for the information does not compensate for the knowledge in proportion to the expense of securing that information in the first place, hence the cost to the purchaser, so to speak, is less because the same knowledge may be given again under similar circumstances, and this knowledge is a part and parcel of one's stock in trade. Knowledge means more than learning, it requires the use of it when opportunity needs it. This is what a diagnostician purports to know and give, and his services are worthless if he is not fortified with preparation.

Dentistry is the science of treatment of but a portion of the body. It is so important that it leads to limitless good by reason that the dental organs being component parts of the body, they are subject to both its pathologic and physiologic activities

Knowledge in dentistry is constantly widening and disease is being studied as never before. Why? Because the sciences of chemistry, physiology, histology, and bacteriology have been clearing the avenues of research to the degree of making panoramic the inroads of disease, showing more clearly the places to ballast the road and switch the filth towards the proper channels of egress.

With the privileges of study that are now being given in our institutions of learning where specialists have given their life's work to the unfolding of truths, there must come the cost of payment of such information by him who desires to obtain the information that he has not had the opportunity to learn for himself. As specialists we cannot estimate the expense to ourselves to obtain a fitness to give valuable service, nor is it adequately appreciated by the laity.

The differences between health and disease often give rise to uncertainties. A case will illustrate the meaning: A lady consulted because of disease of the antrum of Highmore supposing to exist. It was found that there was no disease, but that a plug of cotton had been daily inserted into the opening for several months to enable frequent washing of the antrum.

The cotton acted as a thorn in the flesh and its removal was the signal for the wound to close and end the difficulty. The original disease had long disappeared. Thus it requires an insight to the natural condition of things ere we can distinguish deviations from it. Dental diseases are generally so expressive that it enables one to make a diagnosis without much experimentation. As the sciences are becoming more exact so are the facilities for rapid diagnosing disease. Analysis of saliva is being more utilized and blood tests, as well as investigation of other fluids of the body, impart testimony that formerly required much time in clinical experience to determine.

Perhaps one of the most frequent disturbances that we meet with is odontalgia. What a question it is to be asked, "What is good for toothache?" Some one has said that "pain is pain," but there are different kinds of pain in a tooth and different causes for it. Dentists seek the cause and prescribe a remedy accordingly. Odontalgia may sometimes be relieved by quinine, but more often it would effect no impression. A little knowledge is a dangerous thing, but much knowledge in the practice of a profession that demands relief of pain and restoration of functional powers is of great advantage. Critically observant, the dental specialist has a large field to analyze. From the moment the patient arrives in the office sensations of a new force dawns upon the patient and dentist. This emanates from the deportment, temperament, and conditions of health, all weighing in the mind of the dentist ere he examines the mouth of the patient. Now he studies the contour of the face and particularly the jaws in their relations to the whole physiognomy, as we have been taught by the eminent dental orthopedist, Dr. Calvin S. Case.

We observe the lips and jaws, these when parted expose to view the oral cavity with its array of teeth, muscles, mucous membranes with their glands and ducts, the tongue, and all the diseases that may affect these tissues. Surely the field of work is great. Dentistry is confined principally to the teeth. The construction of the teeth denote their use, and lack of care results in great damage to the economy of right living. It is correcting this laxity of care with which the dentist has most to do. Not only are his efforts being appreciated to a large extent, but enterprising makers of dentifrices are doing good when "he who runs may read" that a dentifrice "is good for bad teeth, and is not bad for good teeth."

To sum up diagnosis in the mouth: Examine the mucous membranes to notice color and infiltrations from disease.

The tongue, its coatings to diagnose intestinal disturbances, also the movements of the tongue to note nervousness.

The gingivae, which are indicators of diseases of the peridental membranes; and finally, the teeth that are present and the necessity of supplying absent ones, or correcting those that are irregular.

It is important to remember the functions of the teeth and to know what their component parts are used for; this applies to the peridental membrane also, which supports the tooth in its place in the jaw.

As there are so few pathognomonic signs of disease in the mouth diagnosis is by differentiation or exclusion largely, therefore clinical functions of the dental pulp and the peridental membrane, namely the senses of sensitivity to thermal changes and touch respectively, are factors not to be unthought of in our determinations of disease of these organs.

BACKING A FACING FOR RICHMOND CROWN.

BY DR. G. B. SPEER, YOUNGSTOWN, O.

I will suggest a little deviation from the present method of backing a facing for Richmond crowns.

Place your backing to cover only the flat part and tip of your facing, grinding off the top flush, thereby getting less thickness between the end of the root and the top of the facing.

It is just as easy to get a close joint and you have one less joint in your work when finished.

* * *

THE MISTAKE OF NEW METHODS.

BY L. P. HASKELL.

In the April number of THE SUMMARY appears an article entitled "A New Method of Tooth Attachment in Continuous Gum Work," wherein the writer states the object is "the avoidance of the old style of grinding up, making backings, investing and soldering, with attendant risks and trouble."

I do not know what the writer means by the "old style," but I can assure him my "old style" is much simpler, less trouble, no risks at all, and what is very essential, is in the fact that the backings which he aims to avoid is one of the most important factors in the *strength* of a continuous gum denture, and should always be used if there is the least room for them, especially back of the anterior teeth.

The strength of this work is in the metal foundation. Of course the porcelain adds to it, but cannot be relied on to withstand the strain of mastication. Too much pains cannot be taken in this regard. The backings are easily applied, in three sections overlapping at the cuspids, but with foot-piece one-eight inch wide resting on the plate. The gold, rolled very thin, is placed under this foot-piece, and a piece under each pin, no borax being needed.

By taking pains to strengthen the work, I have found in fifty years' use it is the most durable and only perfect denture placed in the mouth.

It is to be regretted that so much of this work is being made on too thin plates, no backings, sometimes not wired, and what I consider an essential feature, the "doubler" across the heel, three-sixteenths of an inch wide, with the inner margin turned up slightly to protect the edge of porcelain.

* * *

NEWSPAPER DENTAL NOTES.

BY DR. O. B. KNEISLY, DAYTON, O.

Thinking it might be of interest to readers of THE SUMMARY, I submit the following clippings:

The first is a news item that has appeared recently in the daily papers:

LITTLE GIRL CUTS TWO GOLDEN TEETH. A STRANGE BIRTHMARK.*

WOOSTER, O., April 1.—"A peculiar case of birthmark has come to light here in the teething of a year-old child of Dr. H. J. Sullivan, who told the story himself.

"Dr. Sullivan and wife were wedded eight years ago, and the stork never paid a visit until a little more than a year ago, when the child was born. About six months before the child was born, the mother went to a dentist and had two front teeth filled with gold. Now that the child has cut her front teeth, it is discovered that two of the teeth, identical with those of the mother, have all the appearance of being filled with gold.

"While Dr. Sullivan does not say that what seems to be gold is really the yellow metal, it looks like it, and he says it extends clear through from outside to the inside of the teeth. Dr. Sullivan says that he has cut into the bone and found that it is apparently of the yellow substance all the way through."

While birthmarks due to impressions made upon the mother during the pregnant period are not uncommon, yet the description given by the father leads me to believe he is subject to superstition.

The mark is probably in the form of a deep yellow character, occasionly observed and which is usually due to some hereditary disease.

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*[To ascertain the truth of this statement I wrote Dr. R. Cunningham, a dentist of Wooster, to investigate.—EDITOR.] After visiting the home Dr. Cunningham reports as follows:

"These are the facts as the doctor gave them to me: About seven months before the child was born the mother had her anterior teeth all filled with gold. Now the child's right central is stained exactly the shape of the filling in the mother's tooth, the stain extending entirely through the tooth, while the other incisor is decayed just as the mother's was before filled. The stained tooth is beginning to chip off as far as the stain extends. But it is not true that Dr. Sullivan cut into the tooth."

The second needs no comments and will appeal to the humorous side of all practitioners:

A DENTIST'S EPITAPH.

Epitaphs are often grim, but seldom grimmer than the following humorous couplet on a dentist's grave:

Stranger, approach this tomb with gravity;
John Brown is filling his last cavity.

—*London Globe.*

The third is a copy of an ad in the *Dayton Transcript* of Saturday, March 29, 1845, which I noticed some weeks ago while reading over some treasured periodicals of bye-gone days:

"A CARD."

Dr. Jones, grateful for the past very liberal favors, would inform the citizens of Dayton and vicinity, that he has now a very choice lot of incorruptible teeth, with and without gums, of every tint and shade corresponding to the natural ones, some particularly adapted to the construction of entire sets; gold and platina foil, and every other article in his line specially selected, which will enable him to perform all operations of a Dental character in the neatest and most permanent form. Obturators or artificial palates inserted.

Residence, West Third St., between Ludlow and Wilkinson, north side.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

THE AVAILABILITY AND CONSTRUCTION OF PORCELAIN FILLINGS.

BY RODRIGUES OTTOLENGUI, M.D.S., NEW YORK.

Whilst it is true that porcelain inlays have been advocated for a very long term of years, it has only been since the advent of the material perfected by Dr. N. S. Jenkins, that a new and seemingly abiding interest in this mode of practice has come into existence.

I come before you to-night to discuss the porcelain filling from the American, or practical standpoint. In spite of the artistic influences of Europe, I cannot abandon the theory that the dentist's first duty is to save the tooth, and that it is but a secondary demand that it shall be done in an artistic manner. The mouth is the portal through which enters health or disease. Proper mastication will do much to maintain the healthful equilibrium and the outward beauty of the whole physical form, and this can only be accomplished with teeth so well, so substantially filled that the patient may forget or ignore the fact that carious processes had removed those parts which have been replaced. * * *

I believe that the radical, impetuous use of porcelain, will within five years leave the method hidden away on the top shelf of abandoned practices, alongside of cataphoresis and copper amalgam. On the other hand, I firmly predict that a conservative application of porcelain filling will show an increasing use of the mode, giving it a permanent place, second only to gold; for, despite my admiration for porcelain, I will not permit myself to forget that the corner stone and foundation of successful American dentistry is the permanent contour gold filling.

Viewing porcelain, therefore, from the American standpoint, where, when, and how shall we use it? Perhaps its chief attractiveness will always be its resemblance to tooth substance, but I would call your attention to other important virtues, two in particular: First, it is a poor conductor of heat; second, it is made out of the mouth and inserted complete. Either of these, and especially both combined, will in many instances elect porcelain to a precedence over all other materials. * * *

Some of the most beautiful fillings that I have seen made by Dr. Jenkins have been along the gum margins, on the buccal surfaces of lower molars, the fillings being half under the gum. We all have had the experience that even after the use of gutta-percha or other packing to push away the gum, we have met such a flow of saliva as to preclude the successful use of gold, so that we have been compelled to rely upon amalgam. Here it is possible, it is wise, nay, I will say, it is the very best practice to use porcelain, and yet it is a situation where the beauty of the work is absolutely unimportant. In true American fashion we choose it because it is the most durable and the most useful material.

Another difficult position is where the improper use of clasps has resulted in abrasion and subsequent caries about the necks of molars, usually extending below the gum and commonly very sensitive to the touch. Amalgam is the common reliance, and too often the electro-chemical action caused by the contact of the gold clasp with the amalgam filling, leads either to reappearance of caries or death of the pulp. Here is a place where porcelain is useful, both because it is a non-conductor and because it is made in a single piece and may be quickly inserted, requiring a minimum period of dryness. I show a specimen of this class of work where it will be noted that the cavity has been cut entirely below the line of enamel, a fact which would almost always preclude the successful use of gold, whereas it does not greatly hinder the utilization of porcelain.

A somewhat similar position, where however we may also take advantage of the artistic appearance of porcelain, is shown in another specimen where the filling is made entirely of pink porcelain. Often in mouths where there may be no recession along the palatal side of the teeth, we find extensive recession of the gums along the labial aspect of the cuspids. The exposed roots become very sensitive, and for this reason perhaps, proper brushing is not accomplished with the result that caries sets in, extending under the free margin of the gum to a considerable distance. Here we frequently find great difficulty in using a clamp, so much so that very many ingenious devices have been invented to aid us, yet with half a dozen in our cabinet we too often meet cases where the rubber dam seems inhibited. But even where we succeed, and place a gold filling, it is a large glaring display of gold, carrying constant menace to the pulp which it so closely overlies. The use of gutta-percha for a day or two, will push away the gum sufficiently so that a perfect matrix may be made, showing all the outline of the cavity edge, with absolute accuracy; and, much more quickly, and certainly with less pain to the patient a porcelain filling may be made, which, constructed of the gum-colored polcelain, absolutely defies detection, and restores the tooth apparently to its original size and shape.

HIGH VS. LOW FUSING PORCELAIN.

I believe that there is a general feeling throughout the country that the high fusing is the more reliable. This has come about by the constant repetitions of a few writers favoring high fusing bodies, while the more conservative experimenters with the low fusing materials have felt it best to devote their time to mastering the many intricacies of technique, satisfied that their confidence in Dr. Jenkin's material would sooner or later manifest itself beyond cavil. While I believe that the Jenkins body is the best for practical purposes, I must admit that I have not used any of the other higher fusing materials. Consequently my deductions must be considered with due relation to the fact that I discuss high fusing porcelain only from the claims and exhibited work of its advocates, and not from practical experience. I have, however, endeavored to make matrices with platinum. In my hands, at least, the platinum matrix limits the use of porcelain. Remembering that after all there must be some space between the filling and the tooth because of the necessary presence of cement, we must admit as an honest basis of argument that many cavities can be as easily managed with platinum as with gold foil. But I find that in proportion as the size and depth of the cavity increases the platinum becomes less and less a possibility. This, if true, entirely discounts the high fusing method, for the only advantage that even its most ardent admirers make for high fusing material is that it is stronger, which however is not true. But for a moment admitting this, we must allow that in proportion as the porcelain is exposed to the stress of mastication, the demand for strength increases; yet it is exactly in compound cavities that the platinum matrix becomes increasingly inaccurate in relation to the extent and depth of the cavity.

LARGE CONTOUR FILLINGS IN MOLAR TEETH.

For this occasion I have made a large contour filling as a specimen of what even I, with my limited experience, can accomplish with the Jenkins body. To those who have not tried it I wish to state that I find it more difficult to get a perfect result working with a dried tooth out of the mouth, than when working on living teeth. It seems impossible to

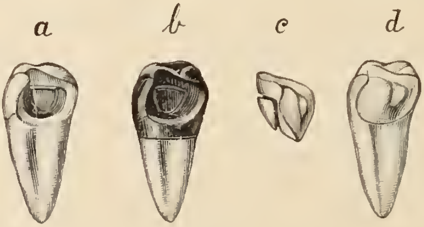

Fig. 1.

prepare the cavity margins as perfectly as when operating upon living tissue.

In the specimen now shown (Fig. 1) I have endeavored to reproduce a case from actual practice, one which combined every useful characteristic of porcelain. In the illustration a shows the cavity; b the extent to which the matrix is made to overlap the edges, thus affording a guide in contouring; c in the filling with undercut groove for retention, and d the filling in the tooth showing restoration.

In the dried specimen the pulp chamber has been encroached upon, but that was an accident, which however only increases the value of the test by deepening the cavity, for it dissipates the argument that the shrinkage of the Jenkins body distorts the shape of the matrix. In the practical case the patient was a miss of ten who presented with the disto-lingual section of a sixth year molar lost, and caries extending below the gum at the distal aspect, the pulp being closely approached but not exposed. I will ask those who examine the specimen to decide for themselves the chance of success with a gold filling of that magnitude, in a moist mouth of a nervous, irritable miss of that tender age. Yet a filling in every way as perfect as the specimen shown was made and inserted, the gum having been first pressed away by temporary fillings of gutta-percha and the tooth kept dry long enough for placing the filling by using cotton rolls, with a combination clamp which depresses the tongue besides holding the cotton roll in place. The saliva ejector, of course, also assisted. In examining the specimen shown I will ask the gentlemen to observe the accuracy of the marginal adaptation, and to turn the tooth in the fingers to view the contouring from every aspect, as well as the restoration of knuckle, which however was, of course, not an essential feature in this instance, where the twelfth-year molar had not as yet erupted.

Having touched upon the word knuckling, I may pause a moment to reply to the mental queries which may have been aroused in the minds of some. The accurate restoration of contour so as to produce contact is largely a matter of skill and comes with experience. Here, however, the gold matrix is more helpful than the platinum because the gold can be made to coveyr so great a surface of the tooth beyond the cavity margins (Fig. 1 b) that we have not merely an impression of the cavity, as when using platinum, but in effect an impression of the whole tooth with a cavity in it. This gives us the lines that fairly indicate the restoration required. It is good practice to over-build a little and then obtain space by separation, to permit placing the filling. This assures contact when the teeth resume their normal places.

DURABILITY OF JENKINS' PORCELAIN.

Before passing from the availability of porcelain I must say a word in regard to the comparative durability of the Jenkins material. That which is at present offered is an improvement both in color and strength over what was first placed on the market. The present product in my hands not only gives great satisfaction, but seems to have very extraordinary strength, even very thin edges being surprisingly resistant to stress. As an explanation of my meaning, formerly I found that if by chance the material had been permitted to extend beyond the margin of the cavity, as indicated in the matrix, the feather edge resulting was quite brittle, and would shatter if brought into contact with a paper disk. Now I find that even very thin edges of this character may be ground away with fine cuttlefish disk without breaking, thus allowing reduction to the original edge and polishing of the same. I also find that after setting a filling, should it seem requisite, the margins may be polished with strips as safely as where metallic fillings are similarly treated. The Jenkins porcelain will scratch glass, which I think a good evidence of its density.

METHOD OF CONSTRUCTION.

I pass now to a brief consideration of the construction of the porcelain filling. It has seemed requisite to all porcelain veneers, that the aperture of a cavity should be larger than what we may term the interior arrangement thereof. This conclusion has been reached empirically from the fact that it is needful to be able to remove the matrix without alteration of shape and finally to insert the filling whole rather than in particles as we do gold, or as a plastic. A necessary result has been that the sole reliance for retention has been upon the so-called cements. The failures with porcelains have been almost exclusively due to the failure of the cement. Curiously enough it has been found that whereas the cement adheres to the cavity walls, whatever their shape, this is not true in relation to the porcelain, the filling coming away clean. Consequently the need of roughening the under surface of the filling was early discovered, but even this in many instances was an inadequate reliance. Having the advantage of observing Dr. Jenkins at work, I noted the manner in which, with diamond-copper disks he cut grooves in the porcelain, and I saw at once the advantage of his method, as well as the fact that it had never been adequately explained in print. At the next public discussion of this subject, therefore, I ventured to describe it as a continuous groove which results in forming upon the under side of the filling, a shape similar to the head and neck side of a collar button. Since preparing porcelain fillings in this manner I have not lost one. Nevertheless, I have long felt that a totally different cavity preparation was a great desideratum in this work, if true permanency is to be achieved.

NEW CAVITY PREPARATION FOR PORCELAIN.

I take the liberty of hoping that I have solved this problem. I believe I have found a simple yet effective cavity preparation, whereby the porcelain inlay will be mechanically retained, as is a gold filling, the cement being utilized merely to seal it into position and only in a measure acting to retain it. I take pleasure, therefore, in exhibiting tonight the result of my experiments. The specimen shown is an extreme example, chosen because working with dried teeth I can better show the cavity formation in a large cavity than in a small one, and also because in this way I once more show the possibilities of filling exceedingly deep cavities with the Jenkins body. (Fig. 2, a, the cavity showing countersunk

V-shaped groove; b, the matrix in the cavity; c, the filling in place.)

The new cavity formation which I suggest to porcelain workers may be likened in homely phrase to the sliding cover to a wooden box. The principle is the same, but it differs from the box cover in that the groove in which the filling slides to place must not have paralleled sides, but, on the contrary, should be approximately V-shaped, with the widest divergence towards the entrance of the cavity. This style of cavity preparation will be particularly applicable to compound cavities which reach the masticating surfaces, as the mechanical arrangement will materially resist the stress of mastication, thus reducing the strain against the cement to absolutely nothing, the filling being so placed that even without cement it could not be displaced by normal stress (though, of course, in the upper jaw gravity would dislodge it). The cavity formation may also be advantageously used in approximal cavities, the filling sliding in either from the labial, buccal or palatal surfaces, as indicated by the requirements. A great advantage in approximal situations is that with this shape of cavity the need of very great separation is avoided.

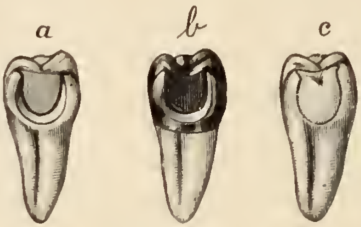

Fig. 2.

Extreme care, however, will be needed in making the matrix, and especially in removing it, and I advise that if in removal a close scrutiny detects a slight alteration, either the overhanging portion of the gold which hindered its free withdrawal must be cut off with scissors, or else the divergence of the cavity margins. and the sliding grooves must be altered to facilitate what, in moulder's phrase, would be called "the draw." After such alteration either in the cavity or in the matrix by trimming, the matrix should be returned to the cavity and readjusted. This should be repeated till a perfect matrix is removed without alteration in shape.

REMOVING THE MATRIX.

I will offer another little suggestion which has recently given me considerable satisfaction. The matrix, as we have been repeatedly told, must be "teased" out of the cavity. I find that this may be greatly facilitated by using an explorer point on the end of which is placed a tiny piece of separating or wedge rubber, the pure gum affording just enough friction to start the matrix, without tending to alter its shape. In large cavities, a small ball burnisher over which is stretched a bit of the smallest French rubber tubing serves the same purpose.—*Extracts from article in Items of Interest.*

MATRIX AND RETAINER FOR AMALGAM FILLINGS.

BY R. G. HUTCHINSON, JR.

I have a little apparatus to show which has been in use in my office practically every day for a number of years, but probably has not come to the notice of many of you. It is not, perhaps, highly scientific, but it is intensely practical, and to me such things appeal most strongly.

What I refer to is this little matrix and retainer. You all know that it is a common thing for plastic fillings to fail at the cervical margin. Sometimes, as in the case with amalgam fillings, the failure is due to the excess of material at that point not having been trimmed off properly. I have many times found extensive inflammation, with loss of tissue, resulting from a large excess of amalgam projecting against the gum, and often in cases where there was evidence of the utmost care and skillful manipulation manifested in the rest of the filling.

Of course this condition need not exist if the operator is careful to trim the filling with suitable instruments before it has had time to set. The use of this matrix, however, renders the operation much more sure and simple, and the contour may be built up more perfectly and left in contact with the adjoining tooth, as the band is so thin that no appreciable space is left.

I consider it advisable after removing the matrix to pass a small quantity of dental fiber through so that any loose bits or possible excess that may have been forced through will be removed.

As regards cement fillings, we all know of their tendency to disintegrate at the cervical margin. My experience has proven conclusively to me that it is more often due to imperfect manipulation of the cement than to the material itself.

Without a matrix it is a most difficult matter to make a perfect cement filling in, for instance, an anterior approximal cavity involving the grinding surface of a molar. If you use a quick setting cement and pay proper attention to the cervical margin, the chances are that you cannot give the contour the fullness and form you desire, or perhaps more commonly the contour and grinding surface receive the most attention and the cervical margin is left to suffer.

There may be a surplus of material bulging out of the cavity, or more likely a space left unfilled where recurrent caries will begin almost immediately. If you succeed in making a perfect filling by burnishing down the cement while soft at the cervical margin, unless the rubber dam is on, your instrument will conduct the moisture from the gum margin and disintegration of the cement will result at that point on account of its having become wet while setting. When this matrix is applied, the gum margin is held away from the cavity, giving full access to the cavity margin and excluding moisture.

Another point that is gained is the ability to trim the margin perfectly after the matrix is on the tooth. I have often found that where I thought the margins perfect, there were thin edges which appeared only after adjusting the matrix, and the failure to remove these would undoubtedly have made the filling less serviceable. This applies more especially to cases where the cavity extends so far under the gum margin that the rubber dam cannot be applied and there is considerable hemorrhage.

In cases of badly broken down third molars in the lower jaw, where the gum has grown into the cavity, it is possible to hold this growth out, exposing the entire cavity, and restore the tooth perfectly with any plastic material desired.

I do not advocate the use of this matrix for gold fillings, but have, upon several occasions, where there was not time to make a separation, been successful in that direction. The matrix can be applied to any approximal surface of any of the molars or bicuspids of either jaw. If it does not draw in close to the neck of the tooth, it can be forced up by wedging in a pellet of cotton.

There is no doubt in my mind that many failures could have been averted by the use of a good matrix, for since using this one I have had much better results than before, and also better than a good many other men whose work I have seen and who did not use the matrix.

Of course perfect results will not be obtained unless care is taken to carry the filling material up to the cervical margin against the matrix, and if a small amount is forced through it can be easily removed after the filling has set and the band has been taken off the tooth.

This little instrument is made by J. W. Ivory, of Philadelphia, and can be obtained from almost any dealer in dental instruments. I recommend it primarily because it is my firm belief that much better results may be attained with than without it, and, secondarily, because it saves considerable time and trouble for the operator.

There are two widths of bands that come with this. You will see the narrow one is just stuck in between the teeth, and the wider is adjusted.

Perhaps some of you do not know of the fibre that I speak of, although probably most of you use it. You can get it at the depots. It is called dental fibre, or tokum. The S. S. White people have the fibre now, although I did not get mine from them at that time.—*From Items of Interest.*

A SHELL CROWN WITH A PORCELAIN FACING.

BY FREDERICK STAUBER, D.D.S., BROOKLYN, N. Y.

Every practitioner is familiar with the object of a shell crown, which is to enclose and thoroughly protect any remaining portion of the crown and neck of a tooth. Personally I am very much in favor of thus preserving teeth which are beyond filling. Many patients do not care to have a full gold crown inserted on a first or second bicuspid tooth, and in those cases the porcelain facing can be employed.

There are many ways to construct a porcelain-faced crown, and I avail myself of the opportunity to report one way which I have recently tried for the first time and with remarkably good result.

The tooth in question was the first upper right bicuspid. After devitalizing the pulp and extirpating it, I found two very small and tortuous canals, and I concluded not to enlarge them for the retention of platinum pins, but to make the crown without them. To give it an equally good and strong support I ground the tooth down just one way, which is, so to say, the main feature of the work. The root-canals were filled with oxyphosphate cement. Upon a subsequent sitting I prepared the tooth for the crown.

The buccal cusp was very frail and the palatine cusp good and sound. I first ground the masticating surface down flat in order to completely clear the occlusion from below. After separating between the teeth with a hard rubber disk, and giving the tooth a conical shape, I cut down the buccal surface to the gum margin, the same as for a Richmond crown leaving the palatine cusp, however, as on this I depended for the main support of the crown.

I then made a telescope cap of twenty-two-carat gold plate, 30 gauge, soldering it with twenty-carat gold solder, to exactly fit the tooth as it was ground down, and letting it run about one-sixteenth of an inch under the gum. Next, I took the color of the teeth and the bite, and then the impression with the crown in place.

The models having been properly articulated, I backed a suitable tooth with pure gold, 32 guage, and ground its cervical end to the proper position on the front bevel of the cap, obtaining a flush joint. This being done, the exact articulation ascertained, and the tooth attached to the cap with a little sticky wax, I struck up a bicuspid cusp of twenty-two-carat gold plate and fitted it to the surface of the porcelain facing, at the same time occluding it with the lower teeth, and waxing it into position.

The model was then taken off the articulator, cut down to a convenient size, and the crown invested as one would a piece of bridge-work. After the wax was boiled out and the case heated for about an hour, I united the parts at the back with eighteen-carat gold solder. The crown was finished and polished like any ordinary piece of work of that kind, and fastened to the tooth with oxyphosphate cement.—*Dental Brief.*

A BRIEF CONSIDERATION OF SEVEN CONDITIONS THAT BRING ABOUT OPPORTUNITIES FOR THE FAILURE OF DENTAL OPERATIONS.

BY DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

The results of the investigations of the cause of decay of the human teeth, to which our attention has been called by the researches of Drs. Black and Williams, have generally been accepted by all intelligent dentists. We now know definitely when a cavity in a tooth is prepared and filled without altering the conditions which led to the first decay that it is but a question of time before recurrence of decay takes place. Where there is not an alteration in the conditions which led to the disease an opportunity is left. In such cases it is simply useless to do the work, for failure is but a question of time; this applies to surgical as well as to dental operations. The question can well be asked, "What is meant by this term of opportunity?" I will answer this by saying that it is one of a number of conditions to which I now invite your consideration. My remarks will deal principally with the proximal surfaces of teeth where fillings have been made, and where it is supposed that there is an adjoining tooth in position. Cavity preparation will not be considered, for all should now know what constitutes correct cavity preparation.

What is an opportunity? It is:

1st. A margin which is not tight, i. e., an opening between the filling and the cavo-enamel margin.

2d. An overhanging gingival margin of filling material which is or is not protected by a healthy gum septum.

3d. A rough margin.

4th. A margin which has been trimmed too much.

5th. Retention centers.

6th. Noncontouring of the interproximal space, and

7th. Any place around a filling or margin that will catch and hold the food.

Here are seven conditions that are worthy of some thought from us. There are a number of others which I could name, but I believe that enough can be said regarding the ones already mentioned to interest us for some time to come. Let us, therefore, briefly consider these in the order that I have mentioned.

1st. A margin which is not tight.

I believe that 90 per cent. of the fillings which are made in the proximal surfaces of bicuspids and molars with cohesive gold do not have tight margins. This condition is caused by the methods used in packing gold. You may be somewhat surprised if you will observe the way gold springs away from the margin while you are packing it into the cavities in the mesial or distal surfaces of incisors. If we look for the cause of this springing away it can be found in the method employed in placing and malleting the filling material. Much care should be exercised in placing properly and condensing thoroughly each piece of filling material as it is inserted. If the eyes are used as they should be, they will quickly aid in overcoming the causes which lead to leaving ditches at some portion of our margins. Where cohesive gold is used for filling cavities in the proximal surfaces of bicuspids and molars, unusual care must be exercised in placing the filling material or an opportunity is left which, later on, leads to failure.

2d. An overhanging gingival margin of filling material which is or is not protected by a healthy gum septum.

This is simply a shelf on the filling which serves to retain or hold food which undergoes changes in its composition with the inevitable result of having recurrence of decay take place.

Where a margin is tight and not covered with a healthy gum septum, but has a ledge of filling material at the gingiva, it is but a question of a very short time before there is a cavity of decay beside that margin. Where, however, this overhanging ledge of filling material is protected by a healthy gum septum, it is simply an opportunity that naturally tends to cause an irritation, which leads to the absorption of the gum in the interdental space and an unhealthy gum septum results. It is not alleged that absorption immediately takes place, for we all know that such conditions have existed for years and apparently little harm has been done, but they are conditions which bring about opportunities for evil, and should be done away with. And while right on this subject, let me impress upon your minds the necessity of removing these overhanging shelves of filling material, as they are conditions which lead to the undoing of our work.

As a rule, it is far more difficult to finish properly an amalgam filling than one made of any other material. It always takes me a longer time to finish an amalgam filling made in the proximal surface of a tooth that has an adjoining tooth in position than it does to prepare the cavity and make the filling.

It does not make any difference whether the material used in filling a cavity is gold, amalgam or cement; it should be properly polished and in so far as possible all conditions that lead to opportunities should be done away with.

3. A rough margin.

Rough margins are frequently the result of carelessness in packing filling material against margins which have been either properly or improperly trimmed. This has a tendency to break up the original marginal form and then it is practically impossible to so pack the filling material that a tight margin results.

4th. A margin which has been trimmed too much.

If you will take a No. 1, a No. 1½ and a No. 2 sandpaper disc, and so hold them that you can look across their cutting surface, you may be a little surprised at the inequalities which you will find. In proportion as the coarseness of sandpaper discs are increased above No. 1, so in the same ratio is there an increase in the roughness and inequalities of their cutting surface. The same is also true regarding the cutting surface of polishing strips. These coarse discs and strips have a tendency to cut minute grooves and hollows in the tooth around the margins of our fillings. These grooves and hollows are unequal in their depth, consequently when the final polishing is completed an opportunity is left for the attachment of microörganisms. With this opportunity in situ the surface of that tooth is placed in a condition where it is but a question of time before recurrence of decay takes place. In finishing fillings made in the proximal surfaces of teeth it is a very common practice to see men, who should know better, run a flat file or a rotary disc completely between the teeth from the occlusal to the gingival margin. Where this practice is followed, not only is the point of contact on the filling cut away, but a hollow is often left in the filling or in the gingival margin. Frequently the gingival margin itself is so reduced by this condition that an opportunity is created which also leads to the failure of our work. I am perfectly aware that there are those who still contend that the rotary disc is the most rapid means (and some assert the only method to employ) for the reduction of a filling, and I am perfectly willing to acknowledge that there is some truth regarding its being a rapid means. But from the amount of havoc and opportunities for recurrence created by its use I am amazed at the courage which so many have in deliberately publishing their convictions. It is our duty to study the conditions produced by the use of the rotary disc and to carefully compare these conditions with those which are obtained by more rational and scientific methods.

5th. Retention centers.

Those who are interested in retention centers can gain much knowledge by reading Dr. W. D. Miller's essay, which can be found in the *Cosmos* for April, 1900. It is a most instructive essay and it is most interesting. It fully bears out the ideas to which attention was called by Dr. G. V. Black, in 1891, that all cavities in the proximal surfaces of teeth must have their lingual and buccal margins extended past all contact with the adjoining tooth.

I agree with what Dr. Ottolengui has said that all fillings should have a looking-glass finish. They should be free from pits and hollows, as these are simply "yeast ditches," as Dr. Searl has named them. The tendency of these pits is to assist in retaining food which will cause decay in the surface of the adjoining tooth if it has not already started.

6th. Noncontouring of the interproximal space.

If the proximal surface of a filling is not contoured properly the interproximal space is not contoured as it should be. The result is that food is held in that space and is a menace to the stability of the rest of the teeth. The proximal surface of a filling should be so trimmed that it slopes in all directions from the contact point. It will then be impossible for food to be retained in that space.

Not until 1897 was there anything said about the importance of giving the interproximal space a proper contour. In that year Dr. Black in a very able essay called our attention to the imporance and the necessity for finishing all operations on the proximal surfaces in such a manner that the interproximal space should be properly contoured.

I am of the opinion that where the contour of the interproximal space is ignored it is, in many cases, the direct cause of disease. If it is not a direct cause, it surely aids and assists disease. These ill-trimmed spaces are a greater factor, at least so I believe, in producing and aiding disease than we at present recognize or are willing to take into consideration. The food crowds into these spaces, is held there and undergoes changes in its composition. This keeps the interproximal space in an unhygienic condition. Such conditions always invite disease. As our knowledge of bacteriology is increased, so also will our ideas of this subject change for the better and we will more fully recognize what an opportunity for evil a noncontoured interproximal space is. I cannot emphasize too strongly the importance of studying this subject with much more care than has ever been given it in the past. It is impossible for us to advance beyond our present narrow limits unless we begin to consider this subject as it should be considered and to study the conditions as they should be studied.

7th. Any place around a filling which will catch and hold the food.

As our knowledge of the conditions which lead to the failure of our work has been developed, so has our knowledge of the importance of trimming properly all fillings and cavity margins been increased. A man of intelligence who has made a study of the conditions as they have been developed for our consideration can now merely examine the condition of the cavity margins after filling to tell just about how long that tooth will remain as it is. Such a person merely watches an operator work for a few moments to know definitely whether or not tight margins are being made. He has but to examine the cavity margins prior to placing the filling material in order to be in a position to speak authoritatively regarding the possibilities of making a good operation in that particular case. Now with our knowledge of the conditions developed to this extent it should be the aim of all in our profession to become very familiar with this knowledge and these conditions, so that no opportunities for holding food are ever left around the margins of our cavities. All should familiarize themselves with the conditions that lead to the failure of our work, and it is the duty of all to obtain an intimate knowledge of the conditions which do harm. By obtaining this knowledge the conditions can be altered and done away with when the operations are made, and failures will not be so likely to take place.—*Extract from article in Dental Review.*

SLOUGHING FROM HYPODERMIC INJECTION.

DR. C. P. PRUYN, CHICAGO.

Sloughing results very often from septic matter that has been carried into the tissue from the external surface by the needle. The tissues are not properly prepared or rendered aseptic before the introduction of the needle, and I have seen a large number of cases of sloughing following the extraction of teeth, septic matter having been carried into the gum tissue by the forceps, the operators feeling sure that the forceps were fairly clean to begin with, but a large amount of impure or septic matter upon the roots of the teeth was carried into the tissues and severe sloughing resulted. I am satisfied that many such cases occur from that source.—*From report in Review.*

DANGERS OF EXTENDING CROWNS BELOW THE GUM MARGIN.

E. S. TALBOT, CHICAGO.

I believe the time is coming when dentists will never place a crown underneath the gum margin. I believe if that crown should be brought down to within 1-32 of an inch of the gum margin, the desired results would be accomplished. Application of the crown below the gum margin produces irritation and especially if it reaches the alveolar process. Any pressure, no matter how light it may be, if it is simply due to the bristles of a toothbrush, too vigorous brushing, the use of wooden toothpicks, the constant irritation will set up an inflammation of the gum margin extending to the alveolar process and interstitial gingivitis will result. This is merely a suggestion. All have seen bridges and crowns where absorption of the alveolar process had taken place entirely from irritation of the gums finally producing the interstitial disease which causes absorption of the gum margin and leaves a portion of the root exposed. The question arises whether decay occurs around the cervical margin. It does in some cases. In a large majority of cases there is no decay at that point because they are kept clean.—*Extract from report in Dental Review.*

ON THE MANAGEMENT OF THE PERMANENT SUPERIOR INCISORS AND BICUSPIDS.

BY L. G. NOEL, D. D. S., NASHVILLE, TENN.

Cavities occurring in these teeth prior to the age of sixteen should be filled with gutta-percha or cement. Tin, advocated by some, the essayist rejects, because it lacks the easy working quality and the adhesive properties of gutta-percha and cement; besides which it requires as much undercutting as gold to retain it, and is as difficult to place. Excluding tin, then, brings us to a consideration of the gutta-perchas and cements.

Gutta-percha, being plastic and easily introduced, we do not need to cut away the lingual wall of enamel for access, as in making preparation for gold fillings, but we desire to leave as much of the enamel margin as will serve to protect the filling from abrasion in the friction of mastication or biting of food. This is an important point to observe in the preparation of cavities for cement or gutta-percha fillings, since they are soft and offer very little resistance. Gutta-percha, if of good quality and not overheated, will, when carefuly introduced, and if well protected by the enamel margins, sometimes last ten years in approximal cavities in the front teeth, and since it has the least power of conducting heat and electric currents of all filling materials yet employed, it is perhaps the best material we have for approximal cavities in the incisors and cuspids of young patients. The teeth should be well separated with thin wide separating rubbers that will engage between the knuckles so as not to ride up on the gum septum. This separation should be maintained until the soreness has subsided, by forcing a bit of folded cardboard between the teeth. Having obtained a satisfactory separation and decided upon gutta-percha fillings, our method of introducing material may be briefly described. We adjust the rubber dam with great care, the edges being carefully everted and tucked under the margin of the gum by silk ligatures secured by a surgeon's knot. We next select a separator to steady the teeth and maintain the space. For this purpose the "little giant" or the Perry separators have usually been found very efficient. The preparation of the cavity is a simple thing when conducted as above described, our attention being turned to the mere removal of decay and the smoothing of the enamel margins, no undercuts being required to save such as may be left by this procedure. A bit of cuttlefish tape will be found useful in smoothing the enamel borders. We next paint the whole surface of the cavity with a solution of resin and chloroform. This serves a double purpose. It covers the surface of the sensitive dentin with a coating that protects the freshly cut dentinal fibrillæ from irritation and affords a glue or adhesive cement for fastening the gutta-percha to the walls of the cavity. This is a decided aid in introducing the first small pellets of material, since they cling to the wall of the cavity and work into place without moving.

The instruments for working the gutta-percha may be few and simple, and they have been too often described in text-books to require more than passing notice here. Such small serrated pluggers as are found useful in working gold will be found serviceable in carrying the material into place. For a detailed description of the instruments and appliances needed in making gutta-percha fillings, see "Flagg's Plastic Fillings." Dr. Flagg's preparations of gutta-percha are very excellent, and if his directions are carefully followed will be found to work almost as kindly as cement.—*From an article in transactions S. B. N. D. A.*

DISK AND STRIP LUBRICANT.

W. C. BUNKER, OREGON, ILL.

I have found a great saving of gold in finishing fillings by smearing lightly the finishing strip with what is given in the books as a lip salve and composed as follows:

Red oxide of mercury	grs. 62
Yellow wax	drachm 2
Oil sweet almonds	drachm 6

It far surpasses vaseline or oil, and undoubtedly the wax in it accounts for the improvement.—*Extract from article in Dental Review.*

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

The advantages of chloride of ethyl as a general anesthetic are asserted by Marshall to lie in a heart and pulse quite regular; the short length of time to induce anesthesia, one to two minutes; the duration of the anesthesia, three to five grammes for a narcosis of four minutes; rapid recovery of consciousness, absence of sequelæ; almost complete absence of any excitable stage; the more or less local freezing action, causing remarkably little bleeding, especially in teeth extraction. The drug is also pleasant to the taste, is very portable, and is also much cheaper than nitrous oxide gas.

Marshall's cases comprise forty-six dental cases, with two failures. This is a much greater number of successful cases than occurs in the administration of nitrous oxide. He finds ethyl chloride an extremely suitable anesthetic in cases of tonsillotomy; there is rapid recovery and very little bleeding.

For children this anesthetic seems to be ideal; six of Marshall's cases were under ten years of age. They were under, corneal reflex abolished in all, in less than one minute, from one to six teeth were extracted, and the chair was ready for the next patient in less than two minutes. In about twelve cases not only was the corneal reflex not abolished, but on telling the patient to hold out a hand, he did so while teeth were being extracted. On complete recovery to consciousness, no knowledge of ever having been spoken to was remembered.

Curiously, the drug seems to be as great if not a greater offender than nitrous oxide on the moral system. Marshall in his small number of cases was twice accused of indecent conduct; once by a woman of indecent assault, though her husband was present, and again of indecent proposals and the use of obscene language. He advises not to administer the anesthetic unless witnesses are present at the operation.—*From Liverpool Medico-Chirurgical Journal.*

STRENGTHENING UPPER DENTURES DEVOID OF GUM WORK.

We are all aware that there often is considerable swelling and inflammation after the extraction of teeth, especially when the whole denture is involved.

As patients are generally very anxious to have a case as soon as possible, sufficient time often does not elapse for these inflamed and swollen tissues to return to a normal condition, consequently it is impossible to attach gum work to the plate if it is wished to produce the æsthetic contour of the mouth exhibited previous to extraction of the teeth.

In the vast majority of these cases the bite is very close, due to the swollen condition of the gums, and there is therefore very little rubber to support the teeth; and such cases will too often return minus one or more teeth, which are, however, generally intact, but have been drawn out of the rubber.

In making such a denture, after slightly trimming the plaster model so as to counteract the subsequent shrinkage of the gum tissues, the teeth are set up on it and waxed up in the usual way to try in the patient's mouth.

If everything is satisfactory, remove from the mouth and prepare the following investment: Plaster, 3 parts; fire-clay and asbestos fibre, of each, 1 part. Now invest the case, with the palatine surface uppermost, being careful to cover the teeth as much as possible.

To add to the strength of this investment, encircle it while soft with a ring of steel wire, to reduce the possibility of fracture during the subsequent firing.

When properly set, remove all the wax with boiling water, and expose all the pins by trimming away. A piece of annealed platinum, dental alloy, or platinoid wire (gauge 20) is then bent and adjusted so as to come in contact with the pins of all the teeth. Another method is to start at the posterior tooth in the investment and interlace a finer piece of wire round and between the pins of all the teeth, returning to the tooth originally commenced with. In this way a thinner wire is used, which is easier to manipulate than the stouter piece. It is immaterial which method is adopted. As there is often plenty of room to allow of gum work posteriorly from the second bicuspid, there is no necessity in such cases to solder the band to these teeth, there being strength enough in the rubber, and it therefore becomes a comparatively easy matter to adjust the band to the anterior teeth alone.

After being satisfactorily adjusted, paint the wire and the pins with a soldering flux, such as a borax solution, and adjust solder; silver solder will answer your purpose admirably and is much cheaper than gold. Now place the investment on a Bunsen burner, heat thoroughly, solder carefully, and cool gradually. Then carefully remove all investing material and you will have a band of teeth that can be readily adjusted to the former position on the model. Wax up, invest, pack and vulcanize in the usual way and obtain a case that will never enter a dentist's office for repairs unless a tooth is fractured by a fall or a severe blow.

The band, besides securing the teeth, acts as a strengthener to the case.

When packing between the anterior teeth give preference to white rubber. It may be urged there is a possibility of the teeth fracturing during the process of soldering; but providing ordinary care is exercised and the following points are observed no fear need be felt of fractured teeth. Use a good investment and *not too much of it;* heat gradually until the whole investment is *red hot;* never apply wet or damp solder or borax to the teeth; cool gradually. When heating up do not take it off the burner before a red hot degree of heat is reached, and finish the heating with a blowpipe, otherwise time and energy are wasted.

If the foregoing suggestions are carried out your solder should flow like wax round the whole band in the space of a few minutes.

If there should be a small space between this band and any of the pins, adjust a small piece of the wire used to bridge this space, and the solder will readily flow over this.

Another suggestion is to boil your solder in a saturated solution of borax, dry over a Bunsen burner, and then cut it into the required size, when it will have enough borax on the surface without applying any on the teeth, as there is no surer way of fracturing porcelain teeth when soldering than applying wet borax to them.

Is one justified in going to this extra work? Yes; certainly, as a case turned out of your office never to return for repairs through any tooth having been bodily drawn out of the rubber will surely bring you more patients than one which returns constantly for repairs; and out of the large number I have done in that way not one has returned, whereas previous to the adoption of this modus operandi they were continually being brought back.

I think, gentlemen, you will be repaid if you adopt this method of strengthening *all* your cases that are devoid of gum work.—*Stomatologist.*

DETAILS.

BY R. C. BROPHY, M.D., D.D.S., CHICAGO.

The dentist who performs his work in a machine-like manner stands a poor chance of accomplishing credible results; something more than mere getting a thing done demands his consideration.

Preparation of cavities and insertion of fillings without due regard for permanency of anchorage, immunity from recurrence of decay, subservience of tooth strength, and restoration of nature's contour, particularly the contact point, in all of which numerous details demand attention can but entail dangerous possibilities.

Complete removal of contents of root canals, thoroughness in aseptic treatment and complete and positive insertion therein of fillings, operations which in some cases approach perhaps nearer the impossible than anything we have to do in practice, we cannot hope to accomplish without the most careful regard to detail. Banding of roots if done so that the entire circumference of wall is paralleled to the full width of band, thereby insuring perfect contact of the band with the roots at all points, and forming of the band so as to nicely fill the space within the free margin of the gum without undue impact with the soft tissues, call for thoroughness in execution of essential details unfortunately too often void of accomplishment.—*Extract from article in Dental Review.*

PORCELAIN INLAYS.

BY HUGO FRANZ, D.D.S., CHICAGO.

A great deal has been said about the shrinkage of porcelain and the consequent evil results of warping of thin fillings, or the drawing out of shape of matrices. You read statements to the effect that the different materials shrink from thirty to fifty per cent. This looks very discouraging, indeed, especially when at the same time the impression is inferred that this shrinkage is certain to interfere with the final shape of the filling. For this reason it has been proclaimed that perfectly fitting inlays could never be made for those peculiar cervical cavities on the buccal and labial aspects of cuspids and bicuspids which with little depth stretch as a narrow band in close proximity to the gums over these curved surfaces. Let me state here that this is a bugbear of the imagination. The said shrinkage of from thirty to fifty per cent. occurs while the porcelain is on its way to change from an amorphous powder to a plastic mass in the process of fusing. During this time the material is in a most sensitive condition to yield to the slightest forces of tension which it may be subjected to. In the process of fusing, the loosely collected grains of the powder are drawn together into infinitely closer molecular union, and this, of course, after the laws of physics, cannot take place without loss of volume. The low and high fusing material differ slightly in their behavior while fusing, and I therefore prefer to take them separately in the following exposition:

The low fusing bodies have but a very slight or practically no affinity to the gold or platinum surfaces of the matrix while fusing, and forsake them entirely to follow their inherent molecular affinities, so that you will find after the first baking that the baked piece of porcelain has tacked itself only to a very small surface of the matrix, leaving the rest of the matrix entirely disengaged. It is necessary, then, to repeatedly flow some more powder into the crevices between the porcelain and matrix, until you have enough porcelain built onto the original piece to fill out the whole concavity. In these low fusing bodies it is very easily perceived that the fusing mass does not in any way interfere with the matrix because of its very slight affinity to the metallic surfaces.

In the high fusing bodies the picture is somewhat different. You will find that the fusing mass is not so unanimously yielding to its molecular affinities only as is the case in the low fusing materials. Already, at the earliest stage of the process of fusing, the particles near the platinum walls display a tendency to stay with them, while in the larger central portions of the material, the affinities of its own molecules will overbalance and cause the center to separate from that small belt of peripheral particles which are attracted by the surface of the platinum, thus producing cracks within the body of the material which have to be filled afterward.

The principal point of emphasis is that this cracking of the material occurs in the process of gradual fusing when the forces of tension in the substance are very low indeed, and not sufficiently strong to alter the shape of the recipient matrix in any way.

A great many operators are in the habit of cutting grooves in the porcelain material before fusing, with the idea of preventing warping. I do the same; but I do not do it so much because I am afraid that the shrinkage spoken of before will interfere with the shape of the matrix, but because I find that it is easier to fill these purposely cut grooves than the crevices which are formed with the material having its own way. In the latter case cracks occur near the wall of the matrix and are very ragged and irregular. It is very hard to fill these thoroughly, so that your filling will be dense just in parts where it is required mostly, *i. e.,* on the surface. If you, in working over larger inlays, cut grooves in shape of a cross, in the material, before baking, you will find that the four pieces of porcelain consequently formed will engage the walls of the matrix from the start much closer, and you will have less trouble in regard to good final margins; and, to my mind, also, the danger of bubbling is somewhat eliminated, although the principal cause for the latter phenomenon is over-baking.

Regarding the shrinkage in cooling, it my opinion that it plays too insignificant a part to interfere with the fit of the ordinary inlay unless in a very small measure it be responsible for the rocking of inlays for compound cavities in molars and bicuspids in cases where the proximal and occlusal part of the inlay form a decided angle, as it always will be, when the pulps of these teeth are not devitalized. In these cases we ought to always cut a groove in the material before baking at the line in which the proximal and occlusal part of the inlay join. The chief cause of apparent warping of the matrix and consequent misfit is *faulty handling* of the matrix, either in removing from the cavity, or in the consequent work in the laboratory. You hear, as said before, frequent complaints of warping of inlays for the buccal surfaces of bicuspids, and also of inlays for compound cavities in the same teeth. Many operators think it impossible to make a perfectly fitting inlay for these cavities, because they claim the porcelain mass in shrinking tears the matrix out of shape. The fact is that it is a very difficult task to work porcelain powder into thus shaped matrices without bending them in the attempt. A few may, by long experience, acquire enough skill to handle these matrices successfully with the aid of a pair of pliers. But even with them the danger of accidental bending will always be very imminent. By far the safter way, especially for the beginner, is to use an investment. The work then is surer and less exacting. The percentage of warped fillings is very materially lessened by this precaution. I would recommend it to all who have had failures with inlays for such cavities. I use powdered asbestos, which investment I often dispense with before the last baking.—*Extract from Dental Review.*

PORCELAIN JACKET CROWN.

DR. W. A. CAPON, PHILADELPHIA.

This crown is made by fitting a platinum band (gauge No. 30) to the root or prepared tooth, the same as with gold cap work, excepting that the joint must be overlapping instead of butting edges. The lingual and labial outlines of the adjacent teeth are marked on the tube as a guide to grind those portions away to gain shape instead of cutting with scissors. The lingual side is shaped with wheel on lathe, and a piece of the same gauge platinum soldered to fit that portion by a very small amount of pure gold. After trimming and fitting to root, the labial surface is ground thin enough to burnish and fit over the tooth, after which a thin veneer is fitted and held in position by the porcelain paste, carefully dried and baked the same as other crowns. The crown is now fitted to the root and requirements noted, such as proper size, shape, and thickness, and just where body is wanted. If the surface of veneer requires grinding it should be done at this stage, so that it will be glossed again by the last heat, which should be strong and of uniform degree. After final baking the platinum portion is polished and the crown is ready for adjusting, using thin cement and very gentle tapping with a pine stick. The crown should fit easy, as there is danger of breaking the thin porcelain on the sides of the crown, or even checking the veneer itself.

The joints are lapped and made as close as possible, so that great and frequent heating will not enirely destroy the solder; excess of solder will flow over the surface of the platinum, causing porosity and destroy the porcelain adhesion, which may not be noticed at the time of operation, but will be more forcibly noted later on. The lingual surface is ground thin to give shape, so that there may be two flat surfaces to hold solder. When finished it gives the proper tooth contour.—*Cosmos.*

SUGGESTIONS

To Vulcanize Rubber Against a Silver Plate: This is best accomplished by placing over the exposed silver in the flask a sheet of thin tin-foil, covering all parts with this so that the rubber and silver will not come in contact. The supporting pins or lugs should be made of platinum or gold, as these would be difficult to cover with the tin-foil, as would be necessary if silver were used for this purpose.—*Brief.*

Discoloration of Inlays:—Howard Roberts.—I have trouble with inlays discoloring; the entire surface of the inlay seems to darken and the line of cement to become black; this does not, however, always take place. In contour work, a chip of porcelain, around which is fused the ordinary body, can be used to considerable advantage. The durability of porcelain inlays is practically unlimited; nevertheless, I think it wise to be cautious in their use; they have their place, but the tendency is to insert them indiscriminately.—*Brief.*

Danger of Zinc in Vulcanizer:—R. E. Luther.—If any member of the profession is following the suggestion of putting zinc in the vulcanizer for the purpose of keeping the flask clean, he will find himself in trouble in a short time.

Zinc in a vulcanizer will, in a short time, decompose hot water, evolving hydrogen; and when there is enough of it to replace the steam, the regulator will be operated by hydrogen pressure and the heat will go down, causing the plate to come out soft at the end of the vulcanizing time.—*Brief.*

A Flux that Will Not Pit:—X. Dodel.—A fluid flux that will not pit and which has been thoroughly tested, is composed of a saturated solution of equal parts of borax and boracic acid in water. The work to be soldered should be clean and free from wax and the flux applied evenly where it is desired to have the solder flow. The pieces of solder should also be wet with the flux. It may be applied to large pieces of work very nicely by means of an ordinary atomizer.—*Gazette.*

A SIMPLE TREATMENT FOR PULPLESS TEETH:—W. R. HUGHES.—Mix powdered charcoal into a paste with creosote. With a broach carry the medicament into the canals. If care is observed, the dressing can be carried to the apex without difficulty. With this treatment aching teeth have been permanently soothed, where many of the stock remedies have failed.—*Dental Gazette.*

PULP CAPPING:—W. R. HUGHES.—In many very deep cavities where a cement capping would produce an irritation, frequently resulting in the loss of the operation, one must hunt for a more soothing menstruum. In all cavities deep enough to require capping or protection over the nerve, mix oxide of zinc into a creamy paste with carbolized resin; apply the paste over the exposed nerve (if there be one) or vital spot; add a thin covering of soft cement over the capping, and apply the necessary filling. This simple treatment will retain the vitality of a great many teeth for an indefinite time.—*Extract Pacific Gazette.*

THE CLEANING OF TEETH:—F. MESSERSCHMIDT.—The first appointment I make with all patients is for the purpose of cleaning their teeth, completing the operation at a subsequent visit when necessary. I then have a clean mouth to work in and can make a more careful examination of the teeth, also observe if the patient is doing his duty towards keeping the teeth in a perfect condition.—*Digest.*

TO PREVENT HYPODERMIC NEEDLES RUSTING:—H. L. PRATT.—It may interest some of your readers to know of a good and reliable method of preventing the formation of rust on hypodermic needle points. I have given the method a test of ten months' standing and the needles are as good to-day as when first purchased. I put the needles into a bottle, pour on and cover them well with pure gasoline and cork tightly. On removing one, blow air through it and dip into alcohol and the odor disappears.—*Dental World.*

IMPRESSIONS FOR INLAYS:—DR. PAYNE.—I sometimes take an impression of the cavity and fill it with oxyphosphate cement from which I can make two or three matrices and fillings, if the first is unsuccessful either in shape or color, without calling the patient to the office for the fitting of another matrix. Besides, the work can be done in the laboratory if one has a competent assistant, thus saving both the dentist's and patient's time.—*Items of Interest.*

UNDERCUTS FOR INLAY:—W. I. BRIGHAM.—In grinding the undercuts to hold an inlay, I have a method which, so far as I know, is original. For instance, if it is an incisor, I make an undercut channel along the under side, running from the cervical wall to the cutting edge; the cement enters this channel and the filling is firmly locked in place. I have never had one come out.—*Items of Interest.*

SIMPLE GINGIVITIS:—Disease of the human gums is common and almost universal. A defect in nutrition or a cachetic condition may cause an isolated gingivitis at a given point. Improper nourishment is also a cause. Higher civilization, mingled with hotel and restaurant cooking, contribute. As for treatment: Correct all malocclusions and restore perfect contour to crowns. Remove all local irritants and deposits and make a light application of iodine to the affected parts. Change the diet to plain, coarse, wholesome food.—*Cincinnati Lancet-Clinic.*

ORTHOFORM FOR PYORRHEA:—N. J. ROBERTS.—Orthoform applied to the pockets following an operation for pyorrhoea, will completely anesthetize the parts for from six to fifteen hours. It is an antiseptic, as well as a local anesthetic. —*Extract Review.*

USE A STERILIZED SYRINGE:—E. A. MAWHINNEY.—We must use a clean, sterilized syringe; I prefer one of all metal which can be boiled, and use enough of it. And lastly, we must have confidence in what we are doing and understand what to do in an emergency; keep our nitroglycerine ready for instant use. Remembering always that many of the symptoms seen in our clinical cases are the result of hysteria more than the effect of cocaine.—*Extract Review.*

METHODS OF CONTOURING INLAYS:—J. F. WESSELS.—My method for contouring or restoring corners is to mix and bake with the regular inlay body tooth porcelain ground quite fine; these particles of porcelain do not fuse, consequently the tendency of the filling to ball while in the fused state is overcome.—*Brief.*

MAKING CORNERS FOR ANTERIOR TEETH:—R. G. BEALE.—In making corners for the anterior teeth, it is my practice to use a section of wood pivot or countersunk tooth, as they closely approximate the shape of the natural teeth. The cavity is prepared in the ordinary manner, care being taken to have well-defined margins. The matrix then secured, sufficient porcelain body is fused to fill the cavity flush with the margins. The chip of porcelain prepared from the above porcelain tooth is cut out from the palatal or lingual surface as the case may be, and placed in position on the matrix; porcelain body is then packed in the space thus made, and the chip fused to the original filling. By this means I am able to secure an inlay perfect in contour, shade, and joint. I would like to call attention to the value of wet spunk for burnishing the platinum in cavities.—*Dental Brief.*

TO FACILITATE REMOVAL OF MATRIX FROM PORCELAIN INLAY:—GEO. BRYANT.—I find that the immersion of the inlay in alcohol, after it is baked, facilitates the removal of the matrix, whether of gold or platinum, and overcomes the danger of fracturing the edges.—*Brief.*

COCAINE A SUPERIOR ANESTHETIC:—E. MAWHINNEY.—It is not true at the present time to say any other substance known possesses as good local anesthetic effects as cocaine. It is far superior to all others, and as a matter of fact all these preparations that I have tested depend upon cocaine for their efficiency, and the great danger is in our using cocaine without knowing it, for when we know we can at least be on our guard and prepared for emergencies.—*Extract Review.*

Do not Use Sandpaper Disk on Enamel Margins:—Dr. Lewis.—Never under any circumstances use a sandpaper disk on any enamel margin! It polishes the margin, and gold will not lie close to a polished margin. I know that a good many practitioners do that, but it ought not to be done. You say, Why not, if I use a coarse sandpaper disk? In using a coarse sandpaper disk the margin will be full of furrows or ditches, and, in less than twenty-four hours after the filling is inserted, secretions are working into the tooth. What shall we use? Take a chisel, one that is sharp (never use a chisel but once without its being resharpened) and plane your margin and you will have tight adaptation.—*Cosmos.*

EDITORIAL

NEW DENTAL LEGISLATION FOR OHIO.

The State of Ohio has at last a dental law worthy the name and hereafter will not be known as the "dumping ground" for incompetents from other states.

From a perusal of the text, which is published in full on another page, the reader will observe that the new law contains many excellent features. The new Board of Dental Examiners will be appointed by the governor of Ohio, not later than June 1st, and will consist of five practicing dentists resident in the State, none of whom shall be a member of a dental college faculty.

The time of the spring examination has been changed to the last Tuesday in June, but the fall examination will be held as usual the last Tuesday in November.

The applicant for examination must present a diploma from some legally chartered dental college and take the examination also. The examination fee is $20.

The board shall excuse from examination, however, all graduates of dental colleges in Ohio up to and including the June, 1905, session of the board. This excuses from examination not only the present matriculates, but all students who enter the dental colleges in Ohio next fall and graduate not later than the spring of 1905. The license fee for these graduates will be only $10.

Bona fide students, residents of Ohio, who have been studying dentistry under a preceptor, twelve months prior to the passage of this act, preparing for examination, will be allowed to take such examination during 1902 and 1903.

With a view to interchange of license with other high standard states, the following clause was inserted: "Upon a unanimous vote of the board, said board may excuse from examination an applicant holding a license to practice in some state requiring a diploma and examination, upon payment of the examination fee."

Under the new law the board may employ special counsel to assist in the prosecution of any alleged violators of the law. This will be of material assistance in prosecuting illegal practitioners, and the increased examination and license fees will bring into the treasury of the board ample funds for all prosecutions, something the old board did not possess.

The new law more carefully defines who is considered to be practicing dentistry, than did the old, and by being so specific in this and other things the board will not have the obstacles to contend with that the past boards have encountered

Altogether it is a good law and places the standard of dental legislation in Ohio on a par with other high standard states. Much praise is due those men who worked hard and zealously for the passage of the bill. Dr. A. F. Emminger was chairman of the law committee. Dr. G. H. Wilson, secretary, and the other members, Dr. H. M. Semans, Dr. G. S. Junkermann, and Dr. J. R. Callahan, all of whom deserve great credit for their successful efforts. Especial praise is due Dr. G. H. Wilson, secretary, who drafted the bill, devised the method of work for its passage and was the aggressive leader of the fight from start to finish.

Of those outside the committee, Dr. H. C. Brown, of Columbus, did effective work for the measure, and the members of the profession generally throughout the state assisted greatly in furthering the passage of the bill.

It was nearly three months from the time of introduction into the "hopper" until the final passage of the measure; but all opposition was squarely met, defeated, and the law passed without expenditure of one cent "boodle" money, which reflects great credit on both the committee and legislators.

Every dentist in Ohio ought to feel grateful over the victory and thankful that at last Ohio has dental legislation of which the profession may well feel proud.

MORE FACTS CONCERNING THE PRESIDENT OF ST. LUKE'S HOSPITAL, NILES, MICH.

The dental profession is aroused over fraudulent dental degrees and certificates emanating from different sections of the country, and of late especially the transactions of one A. C. Probert, who continues sending circular letters inviting the purchase of membership certificates on the dental staff of St. Luke's Hospital, Niles, Mich., for a certain sum of money.

The institution is not only said to be a great fake, but Editor Crouse, in the last issue of *Dental Digest,* shows from the court records of Wisconsin, that A. C. Probert was sentenced to prison in Wisconsin in 1896, for a term of two years and six months, for embezzling the sum of fifteen hundred dollars, and adds: "The A. C. Probert—the ex-convict mentioned in the "verdict and sentence of the court and warden's letter as hav-"ing been convicted of the crime of embezzlement, is the same "A. C. Probert who under the name of Arthur C. Probert, on "the 17th day of November, 1898, two months and eight days "after his discharge from the Waupun Penitentiary, joined in "articles of association for the incorporation of 'St. Luke's " 'Hospital of Niles,' he having been the leading spirit in the "promotion of this confidence-game institution."

In a letter to the *Dental Digest,* Dr. J. B. Williams, of Ashland, Wis., says:

"Everything that I have said about A. C. Probert is a mat-"ter of public record. For a number of years I did dental work "for Probert and his family, and visited him twice while he "was in the penitentiary at Waupun. He called at my office "several times afterward and once after he became a 'Doctor.' "At that time he gave me his card which read—'Arthur C. " 'Probert, M. D., Sec'y & Treas. of St. Luke's Hospital, Niles, " 'Mich.' You see I know the man.

"I have no sympathy for those who buy such 'diplomas', "or 'certificates.' They know what they are paying for and "are just as big fakes as a man who would sell the things.

"Yours truly, J. B. WILLIAMS, D.D.S."

NEW DENTAL LAW, STATE OF OHIO.

AMENDED H. B. No. 151.

AN ACT

To amend sections 4404 and 6991 of the Revised Statutes of Ohio.

(Amended portions are indicated by *Italics*.)

Be it enacted by the General Assembly of the State of Ohio:

SECTION 1. That sections 4404 and 6991 of the Revised Statutes of Ohio be so amended as to read as follows:

Sec. 4404. From and after June 1, 1902, it shall be unlawful for any person to practice dentistry in this state, unless such person shall have first obtained a certificate of qualification issued by the state board of dental examiners of this state, as hereinafter provided.

1. A board of dental examiners, to consist of five practicing dentists, *not members of dental college faculties,* resident in this state, is hereby created, whose duty it shall be to carry out the purposes and to enforce the provisions of this act. The members of the first board of dental examiners under the provisions of this act shall be appointed by the governor of the state on or before the first day of June, 1902. The term for which members of said board shall be appointed shall be three years, and until their successors shall be duly appointed and qualified, and no person shall be appointed for or serve to exceed two terms in succession. All vacancies in said board caused by expiration of term, or otherwise, shall be filled by appointment by the governor of the state.

2. Said board shall have power to make reasonable rules and regulations for the purpose of carrying out and enforcing the provisions of this act. It shall choose one of its members president, one secretary and one *treasurer;* and shall hold two regular meetings in the city of Columbus, on the last Tuesday in *June* and November, in each year, and at such other times as

may be deemed necessary by said board. A majority of said board shall at all times constitute a quorum thereof for the transaction of business, but a less number may adjourn from time to time. The board shall keep full minutes of all of its proceedings, and a full register of all persons licensed and certified as dentists by said board, which shall be public records, and at all reasonable times open to inspection as such. *The board shall render an annual itemized report of all monies received and disbursed, also a summary of all official acts to the governor of the state, upon the first day of January each and every year.* A transcript of any of the entries in such minutes and register, certified by the secretary, under the seal of said board, shall at all times and places be competent evidence of the facts therein stated. The members of the board shall have power to administer oaths, and the board shall have power to hear testimony in all matters relating to the duties imposed upon it by law.

3. Any and all persons who shall desire to practice dentistry in this state after June 1, 1902, except such persons as are *legally practicing dentistry, as defined in this act in this state at the time of the passage of this act,* shall file application in writing with the secretary of said board of dental examiners for examination or license or both, and at the time of making such application shall pay to the secretary of said board a fee of *twenty* dollars; except such person or persons who are not required to take the state board examination, shall pay a license fee of ten dollars; and each applicant shall present himself before said board at its first meeting after filing his application for examination or license by said board. The applicant for examination shall present a diploma from some legally chartered dental college and pass a satisfactory examination as hereinafter described. *Upon a unanimous vote of the board, said board may excuse from examination an applicant holding a license to practice in some state requiring a diploma and examination, upon the payment of the examination fee. The board shall excuse from examination all graduates of dental colleges of this state up to and including the June, 1905, ses-*

sion of the board; also any person or all persons who has or have been the proprietor or proprietors of a dental office or a place of performing dental work in this state, continuously since January 1, 1893. Such person or persons shall be licensed and registered upon application and paying such license fee as is herein provided. The board shall admit to examination, during the years 1902 *and* 1903, *any person who is a legal resident of this state, and has been a student of dentistry, under a preceptor, for twelve months prior to the passage of this act.* The examination *shall consist of practical demonstrations and* written or oral *tests, or both,* at the option of the board, and shall include the following subjects, to-wit: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, *bacteriology, prosthetic,* operative, and surgical dentistry. All persons successfully passing such examinations, or as above provided, and of good moral character, shall be registered and licensed by the said board of dental examiners, and shall receive a certificate of such registration and license duly authenticated by the seal and signature of the president and secretary of said board. In no case shall the examination fee be refunded. But said applicant may be re-examined within twelve months without any additional fee.

4. Every person receiving such a certificate of registration and license as dentist shall, before engaging in the practice of dentistry in this state, place and retain in place while engaged in the practice of dentistry in this state, such certificate of registration and license in a conspicuous position at his place of business, in such manner as to be easily seen and read. The certificate of the secretary of said board of dental examiners, under the seal of said board, stating that any person is a registered and licensed dentist, shall be prima facie evidence that such person is entitled to practice dentistry in this state.

Sec. 6991. All persons shall be said to be practicing dentistry within the meaning of this act *who shall be known as a manager, proprietor, operator or conductor of a dental office or a place of performing dental work,* or who shall for a fee, salary or other reward paid, or to be paid, either to himself or to another person, perform dental operations of any kind, treat diseases or lesions of human teeth or jaws, or attempt to correct mal-positions thereof. But nothing contained in this act shall be taken to apply to acts of bona fide students of dentistry, done in the pursuit of clinical *knowledge in the clinic rooms of a regularly organized dental college which is approved by the board of dental examiners of this state, or under the direct supervision of a preceptor who is a licensed dentist in this state, during the regular vacation intervals of a college course, said student being matriculated in, and pursuing consecutive courses of study in a dental college recognized by the board of dental examiners of the state;* or the acts of legally qualified physicians and surgeons, *unless practicing dentistry as a specialty.*

1. Out of the funds coming into the possession of the board as above specified, the members of said board may each receive a compensation in the sum of *ten dollars* for each day actually engaged in the duties of their office as such examiners, and a mileage of three cents per mile for all distance necessarily traveled in going to and coming from the meetings of the board. *Said board may, with the consent of the prosecuting attorney of any county, employ and compensate out of said fund special counsel to assist in the prosecution in the courts of said county and the supreme court any offense alleged to have been committed under the provisions of this act in such county.* Said expenses shall be paid from the fees and assessments received by the board under the provisions of this act, and no part of the salary or other expenses of the board shall ever be paid out of the state treasury. All moneys received in excess of the said per diem allowance and mileage, as above provided for, shall be held by the *treasurer* of said board as a special fund for other expenses of said board and carrying out provisions of this act, and said treasurer shall give such bond as the board shall from time to time direct.

2. Any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction

thereof may be fined not less than *fifty dollars* nor more than one hundred dollars, or be confined not less than ten days nor more than one month in the county jail, or both. *A second conviction shall be punished by the maximum penalties presented in this act.* All fines thus received shall be paid into the common school fund of the county in which such conviction takes place. It is hereby made the duty of the prosecuting attorney of each county in the state to prosecute every case to final judgment whenever his attention shall be called to a violation of the provisions of this act.

3. Any person who shall knowingly or falsely claim or pretend to have or hold a certificate of registration, or who shall falsely and with intent to deceive the public, claim or pretend to be a registered or licensed dentist, not being such a registered or licensed dentist, shall be guilty of a misdemeanor, and shall be *fined the maximum* penalties provided in this act.

4. The board of examiners created by this amended act may sue or be sued, and in all actions brought by or against it, it shall be made a party under the name of the board of dental examiners of the state of Ohio, and no suit shall abate by reason of any change in the membership of said board.

SEC. 2. Said original sections 4404, 4404*a* and 6991 of Revised Statutes of Ohio are hereby repealed.

SEC. 3. This act shall take effect and be in force from and after its passage.

W. S. MCKINNON,
Speaker of the House of Representatives.
CARL L. NIPPERT,
President of the Senate.

Passed April 29, 1902.

UNITED STATES OF AMERICA, OHIO,

OFFICE OF THE SECRETARY OF STATE.

I, Lewis C. Laylin, Secretary of State of the State of Ohio, do hereby certifiy that the foregoing is an examplified copy, carefully compared by me with the original rolls now on file in this office, and in my official custody as Secretary of State, as required by the laws of the State of Ohio, of an act passed by the General Assembly of the State of Ohio, on the 29th day of April, A. D. 1902.

In Testimony Whereof, I have hereunto subscribed my name, and affixed my official Seal, at Columbus, the 1st day of May, A. D. 1902.

[SEAL] LEWIS C. LAYLIN,
Secretary of State.

SOCIETY

COMMENCEMENT.

DENTAL COLLEGE, OHIO MEDICAL UNIVERSITY.

The tenth annual commencement of the Dental College, Ohio Medical University, Columbus, Ohio, was held on Tuesday, April 15, 1902.

The address was delivered by Rev. J. H. Barrows, president of Oberlin College.

The degree of D.D.S. was conferred on the following:

Albert Edward Allen.
Anderson Bentz.
Karl Clark Brashear.
Charles William Brecheisen.
Alden Bush.
Edgar Raymond Clure.
John Richard Cole.
Harry Conway.
James Ernest Crawmer.
Roy Johnston Cunningham.
Orvie Ernest Depoe.
Perlie Lawrence Dew.
James Willard Early.
John Louis Ewalt.
Dye B. Gallogly.
Roy Pratt Gillespie.
Emil August Graf.
Edward Quimby Green.
Frank Liman Gruber.
Tunis Ronald Hane.
Calvin LeRoy Haverfield.
Harry Emmitt Hawk.
Gillette Hayden.
Harry Lowry Irwin.
Allen Zimmerman.
Floyd Bartels Jones.
Charles Foster Kull.
Thomas Mathers Lea.
Bud Earle Wilson Lindsay.
Frederick Aughey McAfee.
Joseph Ernest Martin.
Walter Edwin Newcomb.
Arthur Whiteley Newell.
Elroy Rees.
Ira Dwight Seiler.
Camillus Welday Sheppard.
Judson Grant Smith.
Peter Phares Sperry.
Earl Bruce Sturgis.
George Elmer Thomas
Elvin Howard Thorpe.
Floyd Porter Travis.
Joseph Emanuel Wagner.
John Peters Warner.
James Welty.
Edward Crawford West.
Alfred Tennyson Wiley.
George Alexander Wilson.
William Ray Wright.

Number of matriculates for the session, 180.

NORTHERN OHIO DENTAL ASSOCIATION.

The forty-third annual meeting of this association will be held at Cleveland, in the Western Reserve Dental College, June 9, 10, 11, 1902.

PROGRAM:

1 President's Address ....Dr. F. W. Knowlton, Akron.
2 A Method of Inserting Artificial Crowns..Dr. J. R. Owens, Cleveland.
Discussion opened by Drs. G. H. Wilson, Cleveland; L. L. Barber, Toledo.
3. Report of Committee on President's Address.
4. Care of Deciduous Teeth.......Dr. F. E. Renkenberger, Columbiana.
Discussion opened by Drs. S. B. Dewey, Cleveland; J. E. Phelps, Chagrin Falls.
5. Compressed Air in Dentistry...........Dr. B. E. Saunders, Elyria.
Discussion opened by Drs. J. F. Stephan, Cleveland; Ira Brown, Cleveland.
6. Eyes ....Dr. C. R. Butler, Cleveland.
Discussion opened by Drs. L. W. Ballard, Alliance; J. F. Daugherty, Canton.
7. The Greatness of Our Calling and of Life..Dr. J. F. Siddall, Oberlin.
Discussion opened by Drs. F. S. Whitslar, Youngstown; Corydon Palmer, Warren.
8. Recreation and Exercise for Professional People—.......... ....Dr. C. D. Peck, Sandusky.
Discussion opened by Drs. F. L. Warren, Painesville; R. A. Dinsmore, Cleveland.
9. Tinfoil—Some Considerations Concerning its Manipulation and Its Merits in the Saving of Teeth...Dr. E. B. Lodge, Cleveland.
Discussion opened by Drs. Wilbur Buzzell, Port Clinton; Neil Bishop, Andover.
10. Dr. J. E. Clark, and Dentistry of Fifty Years Ago........... ....Dr. H. G. Husted, Oberlin.
Discussion opened by Drs. W. H. Fowler, Painesville; P. E. Hall, Ashtabula.
11. Pain ....Dr. W. H. Whitslar, Cleveland.
Discussion opened by Drs. Hugh B. Mitchell, Canton; J. W. Harris, Lodi.
12. The Relation of the Dentist to the Physician and Specialist.... ....Dr. Edmund H. Shannon, Cleveland.
Discussion opened by Drs. J. H. Wible, Canton; G. B. Williamson, Akron.
13. Some Facts and Conclusions Respecting Erosion............. ....Dr. Henry Barnes, Cleveland.
Discussion opened by Drs. Frank Acker, Cleveland; J. R. Bell, Cleveland.

14. Combating Pain in Dental Operations..Dr. W. G. Ebersole, Cleveland.
    Discussion opened by Drs. H. M. Brown, Ashtabula; H. E. Dunn, Warren.
15. The Technique of Applying Cataphoresis Successfully in Dentistry ....Dr. W. A. Price, Cleveland.
    Discussion opened by Drs. W. G. Ebersole, Cleveland; S. M. Weaver, Cleveland.

CLINICS.

1. Labial Clamps..........................Dr. J. W. Lyder, Akron
2. Some Microscopical Specimens.........Dr. F. W. Knowlton, Akron.
3. Mechanical Treatment of Fractures of Superior Maxilla........ ....Dr. V. E. Barnes, Cleveland.
4. Filling Molar Crown Cavities with Non-cohesive Gold........ ....Dr. C. W. Potter, Canton.
5. (Subject to be announced)..........Dr. L. L. Bosworth, Cleveland.
6. Two Methods of Making Cusps for Gold Crowns............ ....Dr. W. A. Siddall, Cleveland.
7. A Simple and Sightly Method of Crowning a Bicuspid........ ....Dr. R. A. Dinsmore, Cleveland.
8. Vernon's Gold..........................Dr. W. B. Connor, Akron.
9. Contour Gold Filling in Anterior Tooth..Dr. Frank F. Douds, Canton
10. Symposium on Cataphoresis.
11. Symposium on the Administration of Nitrous Oxide Gas.
12. Symposium on Filling Cavities Prepared Cataphoretically.
13. My Method of Immediate Pulp Extirpation.................. ....Dr. N. B. Acheson, Youngstown.
14. Voluntary Clinics.

CENTRAL MICHIGAN DENTAL ASSOCIATION.

This society was organized March 27th at an enthusiastic meeting of Central Michigan dentists, held in Ionia. Meetings will be held semi-annually, the next being in Ionia, Mich., in October, 1902. The following are the officers chosen for the ensuing year:

President, J. J. Green, D.D.S., Ionia; vice-president, J. H. Armstrong, D.D.S., Belding; treasurer, C. E. Whitmore, D.D.S., Portland; secretary, P. L. Campbell, D.D.S., Ionia; executive committee, A. E. Cottingham, D.D.S., Ionia; G. F. Smith, D.D.S., Belding; E. A. Hodges, D.D.S., Lowell.

WISCONSIN STATE DENTAL SOCIETY.

The thirty-second annual meeting of the Wisconsin State Dental Society will be held at Milwaukee, Wis., July 15-17, 1902. A cordial invitation is extended to all members of the profession to be present.

W. H. Mueller, *Secretary.*

21 W. Main St., Madison, Wis.

THE SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the South Dakota State Board of Dental Examiners for the examination of candidates will be held at Watertown, July 8, 9, 10, 1902. No applicant will be admitted unless he present satisfactory evidence of having been in active practice of dentistry continuously for at least three years immediately preceding the date of examination, or that he is a graduate from a reputable dental school. All applicants must bring operating outfit, dental engine, and materials, prepared to do fillings of all kinds, or bridge-work.

Applications must be made to the secretary in writing at least one week previous to the date of examination. Candidates must be on hand at 9 a. m., July 8, 1902, at Dr. C. W. Stutenroth's office. None will be received later.

Vermillion, S. D., April 28, 1902.

G. W. Collins, *Secretary.*

VERMONT BOARD OF DENTAL EXAMINERS.

A meeting of the Vermont Board of Dental Examiners will be held at the Pavilion Hotel, Montpelier, Wednesday, July 9th, 1902, at 2 p. m., for the examination of candidates to practice dentistry. The examinations will be in writing and include anatomy, physiology, bacteriology, chemistry, metallurgy, pathology, therapeutics, surgery, materia medica, anesthetics, operative and prosthetic dentistry, together with an operation in the mouth.

Candidates must come prepared with instruments, rubber-dam and gold.

Applications, together with the fee, ten (10) dollars, must be filed with the secretary on or before July 1st.

GEO. F. CHENEY, *Secretary*.

St. Johnsbury.

SOUTH DAKOTA DENTAL SOCIETY.

The South Dakota State Dental Society will meet at Watertown, S. D., July 8, 9, 10, 1902. Porcelain work with gasoline furnaces will be one of the features of entertainment. Orthodonthia will also receive special attention.

Clinics by leading dentists in gold and amalgam filling will be had.

G. W. COLLINS, D.D.S., *Acting Secy*.

Vermillion, S. D., April 28, 1902.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The nineteenth annual session will convene at the International Hotel, Niagara Falls, on Friday, July 25th, 1902, at 10 a. m., and continue in session until the adjournment.

It is earnestly hoped that this session will see a larger representation of delegates than any heretofore held.

Every state is asked to make provision now to send delegates.

Niagara Falls is an ideal place for meeting and the International Hotel is the best, the service and appointments first-class, and the rates will be according to location of the room.

Rates from $3.50 to $4.50 per day, being a reduction of fifty cents per day from the regular rates.

It is expected the usual reduction in railroad fare will be arranged in time.

Additional notice will be given in July journals.

J. ALLEN OSMUN, *Secretary.*

Newark, N. J., April 30, 1902.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The nineteenth annual convention of the National Association of Dental Faculties will convene in the ball-room of the International Hotel, Niagara Falls, N. Y., July 24 next. The Executive Committee will meet at 11 a. m., July 23.

All colleges are respectfully referred to the rule requiring that their annual announcement be in the hands of the Executive Committee at this meeting.

S. W. FOSTER,
Sec'y Executive Committee.

NATIONAL DENTAL ASSOCIATION.

The next meeting will be held at Niagara Falls, N. Y., July 28-31. A good program has been prepared and the meeting promises to be of unusual interest.

THE SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

This board will meet at Watertown, S. D., July 8, 9, 10, for the purpose of holding examination for candidates for licenses to practice dentistry in South Dakota. All applicants will be required to take both practical and theoretical examinations. Bring operating outfit, dental engine and materials prepared to do fillings of all kinds. Application must be made to the secretary at least one week before above date of examination.

G. W. COLLINS, D.D.S., *Secretary.*

Vermilion, S. D., May 6, 1902.

AFTERMATH

PERSONAL AND MISCELLANY.

ANOTHER LITERARY DENTIST: The new illustrated pamphlet just issued by the Burlington R. R., contains about fifty pages, is profusely illustrated and devoted exclusively to Nebraska. It is said to be the most elaborate and comprehensive booklet of its character ever dedicated to the interests of a state by a railroad company. It contains forty-five half tone illustrations, which show Nebraska's productiveness and resources to a most effective degree. The book was written and compiled in its entirety by Dr. W. H. Steele, of Hastings, Nebraska. He is now preparing a similar sketch of Wyoming.

A PROTRACTED GIFT: A child who was delighted with gift of a candy cat said to her mother, "I saved it and saved it till it got so dirty I had to eat it."—*Medical Student.*

A MATTER OF EDUCATION: If the dental profession is going to advance and attain the stand that we should, it must be a case of do our work right, whether we get paid for it or not. A couple of gentlemen here from evidently small towns seem to think that the dentists in the big cities have got all wealthy patients. I am sure if these gentlemen try it they will find more genuinely poor people in the larger cities than they will in the smaller places. I think it is simply a matter of educating the people, and if the dentist feels that he can get probably as much or very nearly as much for his time for applying the forceps, he will advocate extraction; but, if on the other he starts in and spends fifteen or twenty minutes' time to show the fallacy of removing these teeth, you will soon get your people educated to having their teeth taken care of.—*Dr. Young, Dominion Journal.*

Words of Commendation: We are receiving many kind words of commendation for The Dental Summary. If you are not already a subscriber you should be. It will keep you posted on progressive dentistry.

THE DENTAL SUMMARY

VOL. XXII JULY, 1902 No. 7

CONTRIBUTIONS.

THE ADAPTATION OF ARTIFICIAL DENTURES.

BY H. M. KIRK, D.D.S., COLUMBUS, O.

Although prosthetic dentistry is one of the foundation stones of the great structure of dentistry, yet it is a fact that many practicing dentists know but comparatively little about it.

Whose fault it is, whether in the teaching of the dentist, or the lack of it; or in the man himself, we cannot say. But true it is, that prosthetic dentistry is negligently taught in many colleges, especially in those in which the laboratories and practical departments are presided over by inexperienced or unequipped men, instead of by practitioners of some attainments in this particular branch.

It is just as true that the man himself often lacks those peculiar natural mental and mechanical endowments, without which he can never distinguish himself, or even rise above par in this department of the dental art.

Leaving construction of dental substitutes out of the question in this paper, our object shall be: first, a simple classification of a few cases for artificial dentures, to be approached cautiously and considerately; and second, to emphasize a few cardinal points met with in the adjustment of artificial dentures to the mouth. Points which are really principles, and have favorable or unfavorable bearing upon the denture and its subsequent usefulness.

In the first place let it be said that there are cases for which artificial dentures cannot be constructed that will be *wholly successful,* owing to certain stomatological peculiarities which may exist. The dentist should recognize this fact and act and advise accordingly.

1. Extreme age is often a disadvantage to success along these lines.

Salivary secretion is apt to be below normal, thus causing the mouth to become comparatively dry and interfering with the desired capillary adhesion, the main factor in the retention of the denture.

In addition to this the gums are likely to have acquired a senile hardness, with more or less—generally *more* than *less*—resorption of tissue and alveolar process, all of which are found to be unfavorable conditions for artificial dentures.

2. There are cases—subjects for full upper and under sets of teeth—where the upper alveolar arch is unusually small, whilst the lower ridge is disproportionately broad, especially in the bicuspid and molar region.

With such a condition we cannot be assured of the usual success, for obvious reasons; for while making every effort toward the scientific construction of the dentures, there is bound to be an excess of leverage directed upon the upper denture.

This condition calls for not only a perfect articulation of the teeth on the lines of the Bonwill method, but also for an arrangement by which the upper molars shall articulate partially inside of the lower molars, thus reducing the leverage in connection with the upper denture.

3. There are cases—subjects for full upper alone—where,

owing to very irregular or uneven arrangement of the lower teeth, or excessive protrusion of the lower jaw, we find success less easy.

In the first case careful arrangement and articulation of the teeth, with two or more points articulating simultaneously, are most important conditions to be observed.

In the second case, the same suggestions are to be heeded, with an especial effort at reduction of leverage.

4. Another case met with frequently is the patient desiring a full upper denture, and possessing, perhaps, only the six anterior inferior teeth.

This condition demands the insertion of a partial lower plate, carrying the bicuspids and molars, *in order to avoid contact of the anterior teeth.*

Should the patient refuse to order this proposed partial plate, we shall shift the burden of the responsibility upon her, and, of course, do the best we can.

5. There are also cases presenting occasionally with a single tooth in an otherwise edentulous jaw. A solitary tooth is of little or no value for clasping purposes, and cannot endure long.

Besides, the hard process around one or two solitary teeth will effectually destroy all attempts at adhesion.

A pair of solid, well-formed teeth, one on either side, may be of value for a time, as support for the denture; but a solitary tooth should not usually remain, except at the risk of the patient, upon a stubborn refusal to submit to extraction.

Yet each of the forestated propositions, and others, must occasionally be undertaken; but should be done only after deliberate explanation to the patient of the untoward conditions involved, soliciting their aid to supplement our skill.

The second phase of this subject is the

ADJUSTMENT OF THE DENTURE TO THE MOUTH.

1. *Adjust so as to leave a favorable impression with the patient.*

Half the battle is won if the patient leaves the office in a happy mood, for first impressions are apt to be lasting.

First see to it that the denture is trimmed and polished properly. Then adjust to the mouth, being careful that in every particular it is as it should be. Be sure that the articulation is perfect, and that there are no sharp edges to irritate the tissues. *This is imperative.*

Whatever of changing, grinding, trimming, or filing *needs* to be done, *do at once,* and do not parry with the patient, telling her to wear it a few days, then return, and the changes will be made.

Dissatisfaction will be bred, bad impressions formed, and maybe a sore mouth produced, and less time, and much less inclination will be at our disposal when she does return, than at the time of the first adjustment.

2. *In a partial denture, see that the clasps spring into position so as to hold firmly.*

To secure firmness is the purpose of the clasp. Almost every partial denture needs some kind of clasping or cleavage device. All metal partials do.

Rubber partials are securely held, either by means of the clasp or by cleavage, secured by the plate fitting tightly into the interdental spaces.

In partial dentures, as we well know, there is but little adhesion. and reliefs and chambers are practically useless.

3. *Partial dentures should ordinarily be articulated to throw pressure on the natural organs, not on the substitutes.*

Exceptions there may be, occasionally, as there are to all general rules.

To illustrate: should a partial denture be inserted, above or below, carrying all bicuspids and molars, "*lengthening the bite*" slightly by throwing the stress upon the partial denture, instead of the natural organs, would in many cases be a perfectly logical and beneficial procedure.

4. *Avoid allowing the plate proper to extend too high*

upon the process as to impinge upon, or press into, the soft muscular tissue.

The plate is to cover gum, not muscle. It should be exceptionally high and full in the cuspid region, and covering the entire tuberosities, not a portion of them. Low at the fraenum; and, above the biscupids, abruptly so, from cuspids to first molars.

In full lower dentures, the plate proper should be trimmed low enough to avoid if possible its displacement upon opening the mouth, or in the other ordinary movements of the lips and tongue.

5. *Articulation.*

A perfect articulation is of superlative importance, and second only to the perfect impression itself.

In fact, many a denture has caused both dentist and patient unlimited trouble and vexation, solely on account of a faulty articulation; in fact, it is the most prolific source of failure in all kinds of artificial dentures.

To secure this desired articulation of the artificial teeth, a perfect occlusion of the jaws is the first requisite, and is frequently termed "getting the bite."

In cases involving full upper, full lower, and full upper and lower dentures, in particular, perfect occlusion and articulation is likely to be benefited by the use of the face-bow and an anatomical articulator.

The reason is that not only do we desire a perfect reproduction in plaster of Paris of the alveolar ridges, but we desire also that they bear the same relation to the articulating joints of the articulator as they bear in the natural mouth to the condyloid processes.

We might, very appropriately, call it "getting the latitude and the longitude of the dental ridges."

Occlusion alone, and the old-time articulators, are not enough; but must be carried out on the lines of normal articulation, usually called the Bonwill method.

Not difficult when once thoroughly learned; and the method may be used to the greatest advantage on nearly every denture constructed, either full or partial. But if impossible to obtain such an articulation in all its features, the comfort and usefulness of the denture will be enhanced proportionately as it can be used.

a. *The six anterior upper teeth should never strike unduly in any movement of articulation against the natural organs below.* Especially is this principle of vital importance in full upper, full upper and under, and partial anterior dentures, to prevent them from tipping posteriorly. Although the superior anterior incisors and cuspids should over-jet and overbite, still the anterior striking will be overcome by correct articulation as heretofore suggested (Bonwill method).

b. *It is often necessary to rearticulate dentures.*

This may become necessary, either upon recognition of an imperfect occlusion, while adapting the denture to the mouth, or upon the denture being worn for a time, it settles somewhat upon the dental ridges, ofttimes materially affecting and altering the articulation.

To re-articulate, take the occlusion or "bite" with the plate *in situ,* by means of a roll of wax, not too soft.

Mount on articulator, and articulate as in first instance.

c. *The pressure or stress of articulation of full upper and full upper and lower dentures, should come mainly upon the bicuspids and first molar teeth.*

Their cusps should be strongly interlocking, even by deep grooving, if necessary, as was Dr. Bonwill's method, and adopted by many prosthetic dentists. By so doing, the ordinary movements of the mouth, including the masticatory process, will force the dentures strongly and firmly *into* their proper position, rather than *out* of it.

d. *Forward inclined wisdom teeth and others whose axes would articulate against the opposing teeth upon the denture, with the effect of throwing it forward, and thus breaking the adhesion, must either be articulated so as not to strike the* *denture at all, or only with a level or horizontal articulation, and then only slightly.*

As there is a proper way of constructing artificial teeth, so also there is a way of adapting them properly; doing which the one supplementing the other, will predicate success to the dentist, and be a factor in keeping the perennial bloom upon his own face, and those, also, of his clientele.

A CASE IN PRACTICE.

BY H. C. BROWN, D.D.S., COLUMBUS, O.

About eleven years ago, while practicing at Gallipolis, Ohio, a young man from the country came to my office to have his teeth examined. His neck was badly swollen, and on examination I found an inferior left second molar badly broken down and diseased, and I advised that it be extracted, as he had suffered for some time from roots of the tooth, and glands swelling, and had received treatment from a physician trying to reduce swelling of the glands, and was at this time being treated by another physician but with no success.

I had been practicing but about one year, and as his teeth were very difficult to extract, and he being partially paralyzed from childhood, he was unwilling to have the roots removed. His physician was treating him for glanular tuberculosis, and being unable to reduce the inflammation and swelling, he poulticed his neck and lanced it anterior to the sterno cleido mastoid, and well down on neck. The opening was kept patent for some time, until the broken-down glands had discharged freely, when the opening was permitted to close, but only superficially, as a fistulous opening formed, and would require attention every few days, to which the patient attended himself. This continued for about ten years without any serious trouble. About one year ago he called to have roots extracted; and as I removed roots from socket I found an elastic-like sinus attached to the root, as the roots were united, and on investigation I traced the attachment to the opening on neck, as tension would draw in parts about the opening. I decided to remove as much as possible and sever close to socket, but after bringing root forward until about 2½ inches of sinus, which was more or less elastic, was exposed, it suddenly parted about midway, and the part attached to the tissues quickly returned. I had a physician in my operating chair at the time, and I called him in to see the case. It was interesting to the physician and myself, to say nothing of the patient who recalled that I had insisted about ten years ago that the root should be removed, and then told us how much trouble it had caused him, becoming sore and requiring to be opened every few days, when more or less pus would discharge.

After probing the socket well and thoroughly cleansing antiseptically, I requested him to call the first time he was in town, as I was anxious to watch the case. The tissues healed nicely, and now the only trace of his trouble is a small cicatrix on his neck.

A CASE IN PRACTICE.

BY H. V. COTTRELL, D.D.S., COLUMBUS, O.

The patient was a young woman who in childhood had suffered resection of the inferior maxilla. By the operation the second bicuspid and first molar teeth on the left side were removed. No attempt was made on the part of the family dentist to prevent the external asymmetry. which was apparent in the retraction of the jaw to the wounded side. The lower incisors were found to touch the palate more than a half inch posterior to the uppers. The patient was also unable to open the jaws more than half an inch. For several years a "plumper" had been worn in the region of the first molar and the bicuspid teeth on the right side. This very imperfectly restored the facial expression and something more seemed needed.

Owing to the existing conditions it was evident that an impression could not be taken in the ordinary manner. By the use of bridge trays, which it was possible to remove by turning the entire tray buccally, the work was accomplished in two sections. The bite was taken with modelling compound, formed into a sheet about one-fourth inch thick and wide enough to reach entirely across the mouth. The models were carefully adjusted into this bite and the whole mounted. The "plumper" was then formed according to the amount of fullness required. For the same reason that an impression could not be taken with a single tray, a plate could not be inserted, the opposite ends of which were connected on the lingual side of the teeth. Since the room for the tongue was already constricted, and some fullness of the lip was desired, it was found convenient to form the plate on the labial side of the teeth.

By this means it became possible to restore the lost teeth, also to more fully restore the facial expression.

The piece was retained in position by clasping the first molar on the right side and the second molar on the left.

The patient reports she has since worn it with perfect comfort.

PRACTICAL POINTS.

BY DR. G. B. SPEER, YOUNGSTOWN, O.

To Make Amalgam Adhere to Your Carrier: Drill a hole in the end of instrument, undercut same to hold a filling and fill with alloy, and when set smooth off with file or sandpaper, and you have an instrument with which you can pick up alloy easily and quickly.

A Good Splice for Tubing is made from the small vials hypodermic tablets come in.

To Improve Your Bunsen Burner: Drill a small hole in the side down from the top and insert a small brass tube, allowing it to come just flush with the top, leaving the other end long enough to attach to your bellows. When you wish more heat than your burner makes, just apply the blast. It does not change the use of your burner in any way when you are not using the extra blast.

I notice in the May number an article on cleaning files. Now just go to your nearest machine shop and get a piece of *cleaner,* which is something like a wire scratch-brush, being made by running a fine wire through leather, leaving a bristle about one-fourth inch long. A small piece will last you a lifetime.

AUTOBIOGRAPHY OF A SET OF TEETH.

BY DR. H. S. MANN, SAGINAW, MICH.

We were a jolly set of nervous, bilious teeth when forty-eight years ago we were just thirteen years old. Soon thereafter one of our number having been extracted with a pair of turn-keys, our master took us to a dentist, who plugged three of us—one each with amalgam, tin and gold. At the same time he filed apart the upper right lateral and central incisors, which slightly overlapped, for the purpose, he said, of filing out decay. He left a shoulder at the cervical neck, against his will, because we made such a fuss about being hurt. We are as sound and solid to-day as we ever were.

Two years later, one of his plugs—the amalgam, which covered the entire masticating surface of a lower molar—having dropped out, we visited another dentist, who replaced the amalgam plug, and inserted four gold plugs.

The upper left central and lateral incisors were filled approximately. Space was obtained by inserting a wedge, which was allowed to remain one week. The pulp in the lateral died, an abscess formed, which was burnt out with lunar caustic. This tooth was subsequently lost. Eight or ten years after, the amalgam plug having again come out, another dentist replaced it and the old tin plug with amalgam, also inserting two new gold plugs. Thirty-five years ago another dentist filled a crown cavity with cohesive gold, using an automatic mallet, and taking less than fifteen minutes to form the cavity and insert the plug. All of the above work was done with hand tools and hand mallet, except the last. All were also crown or circular cavities, and all were inserted without the use of the rubber-dam.

The next four cavities were prepared with a dental engine. Twenty years ago another dentist filled the upper left first and second bicuspids with amalgam on the approximating surfaces —contouring them. Fifteen years ago the bicuspids on the opposite side were similarly filled by another dentist with cohesive gold. The auto and hand mallets were both used on these. One oxyphosphate plug, on the buccal surface near the gum line has remained for ten years. All of these plugs have preserved the teeth. The kind of gold used in the first lot is unknown. A small quill toothpick has been used after every meal, and powdered pumice on a tooth brush semi-occasionally. Tobacco has been used until lately. Several years ago there was a great controversy as to whether or not a shoulder should be left on teeth separated by filing—also as to quick or slow wedging. Is that point settled yet, or only sleeping?

Also a state dental society gravely discussed the question as to whether a gold plug should last five or ten years. An expert dentist brags to have inserted a soft foil gold plug inside of three minutes, everything being prepared and ready to work. How will this compare with the fifteen minutes cohesive filling above alluded to, nothing being prepared except the cohesive tape, and no show exhibit either. Will the dentist who lately said that a contoured gold or amalgam plug in the bicuspids would not stand the stress of mastication, please explain why these are still there and doing work? Perhaps the secret of their long life lies in the constant use of the quill pick, which prevented any food lying between or any mucous gathering upon us.

Ten gold and five amalgam plugs of all kinds, from fifteen to forty-eight years old, inserted by seven dentists, in a jolly set of hungry, nervous, bilious teeth.

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THE ADVANTAGES OF THE DENTIST OF TO-DAY.*

BY DR. W. C. DUNN, MEADVILLE, PA.

The profession of dentistry has traveled a long and weary road, and while we do not pretend that we have arrived at perfection in our chosen work, still we feel we have great cause for congratulation, and that we are enjoying benefits denied our predecessors—those men whose hardihood and thoughtfulness laid the foundation of all the advantages which we enjoy to-day. In those days the operator prepared everything himself, from instruments to material, but even with such crude means some of them accomplished things that now seem marvelous.

We can set no fixed time when the practice of dentistry began, for from time to time evidence is brought forth which takes us back hundreds of years. Nevertheless, it is not so long ago that dentistry was considered a crude profession, not to say a trade. But the young man starting out to-day has advantages almost innumerable. In the first place he has the mental training. Every boy can have a good common school education; a majority an academic and college course. This in itself is a great factor in his future. The improvement in our dental colleges is immense and every year sees better methods and greater care taken in equipping the young practitioner, and one is struck with the thoroughness of the teaching. After the college, the passing of the State Board is a nominal affair.

To the dentist of to-day the general publication of books and magazines gives great help. They keep him thinking and working as he reads and applies what has been thought out by some ingenious mind. We also give our mite, which may be just the solution some one else is looking for.

Our dental societies are the source of help and inspiration to us all. We see things practically demonstrated that to us previously were merely theories, and we come in contact with men who make us ambitious to excel.

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*Paper read before the Lake Erie Dental Society, May, 1902.

The mechanical improvements that help us are evident at every turn. Electricity has benefited us as much as any class of men, and we of this age are able to do things before impossible. While our materials may still be improved, yet there come ready prepared to our hand substances for meeting almost any condition. The dental profession itself is largely responsible for this state of affairs. It has refused to be put off with inferior supplies. We have to-day in our ranks men investigating and striving to give us materials better fitted for our work, and they have forced the manufacturers to give us these improvements. To-day we have really the world's supply at our command. We have the well equipped depots in nearly all our large cities and we have also at our disposal telegraph, telephone, mail, and express facilities. Our brothers in the cities use the telephone and supply their wants almost immediately, while we a little farther away must use in conjunction the mail and express.

A little incident which made these benefits more apparent occurred in our office a short time ago. Just at the close of the day the long, flexible shaft or cable of an engine broke, filling the owner with dismay as he needed it badly the following morning. After a few minutes spent in regrets, he had an inspiration. Stepping to the telephone, he called up a well known dental depot, a hundred miles or more away, telling them his trouble and just what he wished. Going down early the next morning he found the much wanted part, and had it in place before the time required. Thus the breakge caused him no loss of time—a very practical illustration.

We have a great help in the enlightenment of our patients. They appreciate our efforts and supplement them with their own. We to-day have regular hours for our work, and people, recognizing that our time is valuable, help us economize it by punctuality, so that we are able to do a great deal in seasonable hours. A great many practitioners have patients whom they have had from infancy, and they are able to carry the little ones along, never knowing the discomfort and pain the lack of care has caused their parents. This is becoming so much the case that we can bring them to the age of responsibility in good order, and the care thus begun is usually continued.

To those who have been so unfortunate as to lose the natural organs, we are able to give by artificial means something that will be a very capable substitute, either by bridges, crowns, or full sets of teeth. Our methods of articulation at the present enable us to imitate nature very closely, giving both expression and a useful denture.

The dental profession has in years gone by been unjustly persecuted by holders of patents, in the most cases invalid. We have to-day among ourselves a society that has done a great work in relieving us from these parasites. We believe in the Dental Protective Association, and we hope that all members of this body are likewise members of that, for it not only protects us from past and present trouble, but its benefits also look to the future.

The science of optics has given us correct vision, and that adjunct, so necessary to our calling, good light. We have learned the proper coloring to give our surroundings so that we may have their restful influences during long operations. The perfection of anesthetics has opened a wide field for the dental surgeon and we both see and read of marvels done for the relief of suffering humanity.

We are to-day recognized, and worthily so, as a profession in every sense of the word. Working in harmony with our brothers in the medical ranks, we are pushing on to the solution of those problems which shall benefit mankind. There may have been a time when the world was willing to do without us, but now they could have no such thought. They turn to us for help in suffering, feeling confident of relief. They look to us for improvement where nature has failed, and we send them forth gleaming with satisfaction and banded together as we are we shall still go marching on.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

USE OF THE SADDLE IN PERMANENT BRIDGES.

BY H. J. GOSLEE, CHICAGO.

With an appreciation of the importance of this particular problem, I have purposely deferred its consideration until the last, and shall beg your indulgence and permission to treat it in technical detail and at some length.

That which I understand to be generally designated as a "saddle" is the surface or portion of the work which is brought in contact with the tissues, and which is purposely intended to serve as a permanent, immovable rest or support, intermediate or adjacent to the roots acting as abutments for the work.

The usefulness of such a medium of support, *when indicated,* is, in my opinion, unquestionable and indisputable, but its efficiency increases or diminishes in proportion to the degree of accuracy obtained in the adaptation.

Let it be understood, however, that the *paraphrase* "when indicated" fully covers the question of its usefulness, because the use of such a device is often entirely unnecessary, and frequently contraindicated.

While some rest upon the tissue is invariably essential to bridge construction, the indications for the use of a saddle are governed entirely by the conditions existing, which should, of course, be carefully noted and studied, in order that the requirements of the case may be determined, and that the indications for the application of a *fixed* structure may be definitely ascertained as favorable.

PORCELAIN.

The use of the saddle, in my opinion, is indispensable in porcelain work, for the reason that the friable nature of this material demands that such portions of it as form masticating surfaces and are to be subjected to masticating stress must be protected and supported. As the strength of this material increases in proportion with the bulk, as much as is consistent must be used in reproducing contour, and the saddle affords the only adequate means of supporting such reproduction; hence, from this standpoint, it makes possible the more permanent success of this work.

EXTENSION BRIDGES.

Its use is also indicated in extension bridges of gold or porcelain, where one or more posterior teeth possessing masticating surfaces, or subjected to masticating stress, are carried anterior or posterior to the abutment or abutments. In such cases the abutments must, of course, necessarily possess sufficient strength in themselves to afford ample and permanent support to the dummies, and the occlusion should be such as to throw a preponderance of the stress imposed upon the roots supporting the work, but a proper rest upon the tissue will then enable the dummies to offer and sustain a degree of resistance sufficient to make them comfortable and serviceable. If such a condition is not obtained, and the work assumed by the dummies is thrown entirely upon the abutments, it is but natural to expect the destruction or displacement of the piece or the ultimate loosening and loss of the roots.

In those cases where the position of the opposing natural teeth, or the absence of some of them, necessarily throws the greater portion of the stress of mastication upon the dummies, and perhaps even precludes any occlusion of the abutments, a rest upon the tissue beneath the area of greatest stress is indicated. The relief thus afforded the abutment roots, especially where the span is a long one, and the additional strength given to the piece at its weakest point will often admit of the practical and permanent application of stationary work, which would otherwise prove a failure.

THE SADDLE AS A HYGENIC MEASURE.

While granting that theory and practice are sometimes but distantly related to each other, yet, contrary to the generally accepted belief in the unhygienic condition usually afforded by a saddle, such a device, I think, is sometimes indicated, in order to secure a closer approach to a hygienic result.

In cases, for instance, where the occlused surfaces of the opposing teeth in occlusion are in close proximity to the tissue in the space to be bridged, a condition commonly called a "close bite," and where the dummies to be supplied must possess a masticating surface in order that such a bridge may be serviceable as well as ornamental, the use of a well-adapted saddle will result in a far more hygienic condition than the lingual shell formed by the attachment of the cusps to the facings.

While in such cases the cusps should not be large bucco-lingually, and the lingual surface of each dummy always favorably contoured, if possible, the surface of a bridge brought into close contact with the tissue will often be found far more hygienic than the absolutely inaccessible receptacles resulting from the usual method of construction. In this connection the surface of a well-adapted saddle, and the possibilities for gum reproduction and lingual contour afforded by it, will often render the work cleaner and more comfortable to the patient than the ordinary construction, which with every favorable opportunity is often neglected, or impossible for even well-advised and usually scrupulously diligent patients.

Whatever merit and advantages a saddle may possess, and however useful it may sometimes prove, there are, however, conditions contraindicating its use quite equal in importance to those indicating it, and which must be observed even more closely in order to preclude the evil results of an unnecessary, unwise and injudicious application.

CONTRAINDICATIONS.

In bridges extending anteriorly to the second bicuspid it is often practical to carry one dummy, where no masticating surface is necessary, without any support upon the tissues beneath it. In such cases, however, the abutment from which it is extended should possess sufficient strength and should assume a preponderance of the stress imposed.

The saddle is also unnecessary, and consequently contraindicated, in those typical cases where the abutment roots are close enough together and sufficiently strong to withstand the stress assumed by the entire fixed structure; where the occlusion is favorable, and where every opporunity is afforded for the abundantly self-cleansing contour of the lingual surface.

Such construction is also contraindicated in all cases where thorough and complete absorption of the tissues has not taken place. If this is not observed the subsequent absorption will not only destroy the usefulness of the saddle, but will result in the presentation of a decidedly unhygienic condition.

As the success of the saddle is so dependent upon a proper and sufficiently close adaptation, it is, of course, always contraindicated whenever and wherever every facility is not, or may not be, employed to secure and sustain such relation.

CONSTRUCTION OF SADDLE BRIDGES.

A consideration of the requirements must begin by specially emphasizing that its "success and usefulness increase in proportion to the accuracy of its adaptation." It must fit the tissue perfectly and must rest upon it with uniform pressure at all points sufficient to afford relief to the abutments, and to preclude the infiltration of food-laden secretions between it and the tissue upon which it rests; yet not sufficiently hard to cause capillary stasis, or to induce reabsorption. In size it should be no larger or cover no greater area than is absolutely essential to the work to be assumed by the teeth it is intended to support, and the edges should be *rounded* and *smooth*, so as to afford no possible irritating influence. It should also be made of a metal which is least susceptible to the chemical action of the secretions. For this reason the use of platinum is universally indicated, because, aside from its manipulative qualities, it is least affected when subjected indefinitely to such action, and, in consequence, will more permanently retain its color and lustre, and remain cleaner than gold of any degree of fineness.

The importance of adaptation has already been mentioned, and while various methods of procedure have been suggested and employed as a means of obtaining this, it is usually accomplished with difficulty and uncertainty. The following method, however, will overcome any obstacles and insure a degree of certainty and accuracy which will add much to the practicability, serviceability and cleanliness of the saddle. The abutment caps or crowns should first be completed and adjusted to position on the roots. An impression of them and the intermediate tissue should then be taken with plaster. If the crowns are withdrawn in the impression on removing it they should be detached and laid aside for the present. The open ends of the impression should then be filled in with moldine or plaster, and, if necessary, the whole may be built up or extended sufficiently to give adequate body and strength to the die. After drying, the die should be secured with any fusible alloy, and will present a perfect reproduction of the abutment crowns in position and their relation to the tissue upon which the saddle is to rest. This should then be built up, as suggested, in order to form a matrix for the counter-die, in which it is only necessary to leave the surfaces of the crowns presenting toward each other and the intermediate ridge exposed. After dusting the surfaces with lycopodium, which I have found to prove the best and cleanest separating medium, the counter-die may be easily secured of the same alloy. Thirty-two gauge platinum, or platino-iridium, if stiffness is desired, should then be swaged and trimmed to the required form.

The shape and conformation of the tissue upon which the saddle is to rest, and the size of the dummies to be supported, should guide in the shape and form given to it. In broad, flat ridges the saddle should be proportionately larger, of course, than in thin, sharp, narrow ones, the usual width varying from three to five-sixteenths of an inch. When the wider saddle seems indicated, however, it is usually best to leave it full width immediately beneath the dummies only, by cutting it away to some extent in the interproximal spaces. Such a shape affords opportunities for sufficient support and lingual contour beneath the dummies, and, especially in gold work, less conspicuous and possibly cleaner interproximal spaces.

When properly swaged and trimmed, the crowns should be adjusted to the roots and the saddle finely adapted in the mouth. Each end should be trimmed so as to come in direct contact with the crowns *when pressure is applied,* and the edges should not be allowed to lap over upon them, as such a joint would destroy the assurance of accuracy of adaptation at this vulnerable point. It now becomes necessary to preserve an absolutely accurate relation between tissue, saddle and crowns, until the same is permanently sustained by soldering. This can be accomplished by securing an impression of the parts in position, in plaster, *with sufficient pressure upon the saddle* to insure a bearing upon the tissue, which will enable it to afford support and offer a resistance to the stress imposed. This may be secured by the use of a prop of orangewood, of suitable length to keep the mouth open, with one end resting upon the center of the saddle and the other against the opposing teeth or ridge. With this so adjusted, and a firm closure upon it, the saddle is gradually and gently forced into the tissue, when the impression can be taken *without relieving the pressure.* For this purpose an ordinary partial impression tray similar to S. S. W., No. 30-31, is used, with a slot cut into it from the heel sufficiently wide to accommodate or *straddle* the prop, so that when filled with plaster it may be easily carried to place. By such means a uniform pressure is secured and sustained, as can be done in no other manner, and the accuracy of adaptation is proven by the fact that the plaster never penetrates beneath the saddle in taking the impression. This idea is a modification and more practical application of the suggestion of Dr. W. E. Griswold.

When the impression has been secured it should be filled with investment material, which, after separating, will admit of the permanent attachment of the parts with solder. The piece should then be replaced in the mouth and the bite and final impression secured for the completion of the work.

These props may be cut in various lengths to meet the requirements, and may be made applicable, where there are no opposing teeth, by covering the end which rests upon the tissue in such cases with a cushion of modeling compound or sealing wax.

In the mounting of fixed bridges when a saddle is used, the employment of gutta percha is always indicated, because of the extreme difficulty encountered in preventing the surplus cement from flowing in between the saddle and tissue, which, after crystallization, offers a constant source of irritation, often most conducive to troublesome and unpleasant results.

Such accident may be remedied, however, by previously placing a piece of unwaxed silk floss over the ridge, which, after mounting, and with the teeth held in firm contact, may be carried backward and forward until much of it is removed. Yet, with close adaptation this is necessarily somewhat painful, and such a requirement may be entirely overcome by using gutta percha, aside from its other advantages.

The question very naturally arises as to just what condition the tissue under such circumstances may ultimately present, and what, if any, physiological change or pathological disturbance will occur. Time alone will answer this, but an extensive observation and considerable experience has so far indicated a favorable prognosis.

Upon the removal of several such bridges worn from three to five years, where the adaptation had been good, the surface of the saddle was found clean and comparatively free from accumulations, excepting some little exfoliated epithelium; the patients had experienced no particularly unpleasant taste nor offensive odors, and the tissues, while presenting a slightly reddened, somewhat congested condition, due perhaps to a *superficial* capillary stasis, as a result of the pressure, indicated no marked evidences of soreness, inflammation, hypertrophy or resorption.

Such results could only be expected, however, where a good, close adaptation and no irritating influences existed. To reiterate, the success of crown and bridge-work, in any of the various phases of its application, is, and always will be, dependent upon and coextensive with the observation of three cardinal principles: *Conservatism* in method of procedure, *judgment* in application, and *skill* in execution.—*Extract Items.*

ORAL PROPHYLAXIS.

BY DR. D. D. SMITH, PHILADELPHIA.

I have spoken of the prophylactic treatment as a process to effect and maintain complete change in tooth environment; and such it is, and the beneficial results are in direct ratio with the accomplishment of this result and the perfection with which it is maintained. It consists in the *forcible* and *positive* change of tooth surroundings from bad to good; from harmful to beneficial; from acid to neutral; from culture-producing plaques on the teeth to a germ-freed immune surface. But is this feasible or practical, or is it a scheme of the imagination only? In answer to this let me here give some attention to the methods pursued. Briefly stated, treatment of the teeth for complete change of environment consists in thorough removal at frequent and regular intervals——once a month has thus far proved most satisfactory—of all accumulations, whether solids, inspissated excretions, semi-solids, or bacterial formation, from all the exposed surfaces of the teeth, leaving the enamel, or whatever of the tooth may be exposed, thoroughly polished and thus in the best condition to void hurtful deposits and equally to favor all efforts of the patient in the direction of cleanliness.

It is readily demonstrable that to secure and maintain true cleanliness in the mouth, even on the part of the most painstaking, is impracticable if not impossible without the direction and assistance of an expert and intelligent operator. There are calcific deposits constantly increasing; the more immediately hurtful acidulated bacterial accumulations; inspissated mucus retaining decomposing particles of food and furnishing most favorable conditions for bacterial culture and the retention of excretions, not alone from the gum margin, but from the whole gum surface. Besides these, there are irregularities, formations and positions inaccessible to all ordinary methods of cleansing, which implies the perpetual retention of matter inimical to the teeth and gums. These injurious accumulations with their equally injurious emanations, hitherto overlooked and disregarded by physician or dentist, are not only causes of decay, but are equally causes of gingivitis, absorption of alveolar structure, and recession of gums, which latter conditions are far more to be dreaded.

Recognition will yet be made of the important fact that to the *presence* of foreign matter on and about the teeth, rather than to the *quantity* of it, the beginnings of decay and pyorrhea are wholly attributable. The deleterious influence of a breath perpetually loaded with offensive emanations from this source, especially during seasons of salivary inactivity, as in sleep, will ere long be disclosed as an important factor in many pulmonary and digestive disorders, and will be taken account of in medical diagnosis and treatment.

Many who have given the matter but passing notice seem unwilling to believe that for the accomplishment of this object there can be any distinguishing difference between wheels operated by power and the orangewood sticks and pumice in the hand, guided by educated intelligence. To such it may be said, a true comprehension of this treatment necessitates abandonment of all engine wheels and a resort to the hand use of the orangewood sticks and pumice *alone*. In the rapid revolution of polishing wheels by power, acquirement of that stimulating energy in the tooth which is a characteristic of the hand process is impossible, and the important after-effects are entirely wanting. The delicate sense of touch is lost through the wheel, and the surfaces treated will receive the force of the polisher uncertainly and unevenly. The wheel cannot be carried to the festoonings of the gums, the point where treatment is most needed, without injury to them . On account of the involuntary contraction of the orbicular and buccal muscles and the encroachment of the tongue, often accompanied with profuse flow of saliva, obstacles to the use of the wheel in many situations, as on the lingual faces of lower molars and bicuspids, especially in children's mouths, become insuperable. The mechanical difficulties alone, coupled with lack of adaptation of the power polishers, if there were no other reasons, point unmistakably to the diagnosing touch and the delicate use of the hand instruments.

They furnish the only rational means yet devised for the successful removal of the secretions, excretions, and any and all accumulations from the necks of the teeth and from exposed tooth surfaces; for polishing the teeth; and, last but not least, for the stimulation of the vital functions within the teeth to a condition of normal activity. No wheels, no medicament nor medication; no system of cleansing suggested to nor practiced by patients, will accomplish this end. It must be done by educated, skillful dentistry, enforced and repeated as a vitiated environment may demand it. The time limit thus far found to produce the most satisfactory results for the arrest of caries is, for frail temporary teeth, two to three weeks; for adults, once a month.

The benefits of this treatment may be summarized as follows: 1st. The arrest of caries of the teeth. This will be partial or entire in proportion to the frequency and thoroughness of the operation. It was decay alone which in the beginning we sought to combat, and the proven results are such that in all cases the arrest of caries in all parts of the mouth is predicted with a firm confidence; with an assurance one feels in the arrest of decay by means of a perfect filling in an individual cavity. In the teeth of some children under fifteen years of age who are under this treatment there have been in the four years a few new cavities, but I cannot recall a case where a new cavity has appeared in connection with the teeth of an adult. I am satisfied that more frequent treatment and stricter methods for the patient would have reduced the few cases in these young people, all of whom had extremely frail teeth, but all are now improving in character. The treatment will greatly retard but not prevent redecay under old, imperfect fillings. Strange as it may seem, delicate, deciduous teeth are even more responsive to the treatment than the permanent teeth. Where full control of the case has been given, no single instance of new decay in these teeth is now recalled.

In the case of a boy with extremely delicate teeth who has been under treatment two and one-half years, the record is as follows: At the beginning of treatment, three years of age, five cavities were filled. First year, treatment regularly every two weeks, except month of August. Second year, and to the present time, treatment every three weeks. Result: Redecay under an amalgam filling; teeth at present in perfect condition, with first permanent molars just appearing.

In cases of erupting teeth constant oversight and great care are needed. The record in these cases has been one of almost complete exemption. In a number of instances where the first permanent molars erupted under the old regime, and decayed in one eye. Indeed, it is altogether likely that such a mishap on the occlusal, mesial, distal and buccal faces (and in one instance on the lingual as well), the second permanent molars, erupting into a better environment, are without decay and in perfect condition. Similar observations may be made from my experience with third molars. In young adults and in patients in middle life under this prophylactic treatment there has been no new decay and the teeth are constantly improving in appearance and in texture.

2d. A decided change for the better in the color of the teeth. This improvement can have but one explanation—it is the result of the stimulation due to the treatment, the vital activities within the tooth taking up and removing the old, effete, stagnant matter in the tooth-substance and replacing it with new and better material. The change in color is from an opaque, old ivory appearance to that of clear, translucent, polished enamel, the whole giving the appearance of increased density and general improvement, denoting decay-resisting structure; the apparent stimulation from the treatment rapidly changing the color of the tooth, diminishing its sensitiveness, both externally and internally, and greatly improving its quality; changes which have impressed and astonished the author as perhaps no other results from operations on the teeth or in the mouth have ever done.

Prognosis in this matter is always good. In a number of instances it has caused the dark brown stains in the dentin of roots uncovered by gum recession to be taken up and replaced by a perfectly normal tooth color. White spots on the labial faces of front teeth, indicative of interrupted enamel neutrition at that point, have greatly changed for the better under this treatment and in two cases the teeth have resumed a normal aspect. Other instances might be cited in evidence of the nutritive changes beneficial to the teeth, which are the undoubted result of the stimulation from this treatment.

3d. It greatly relieves sensitive conditions so commonly found in the gums at their margins, and it seems a corrective for highly sensitive dentin. Cases of filling or refilling which have been found necessary where the mouth was under this treatment have certainly suffered much less from the pain of excavating than before the treatment was instituted, and ligations for rubber-dam applications have been effected without pain.

4th. It reduces the vascularity and undue color of the gum tissue and arrests perfectly all gum recession due to local irritation; it induces festooning and striation of the gums and causes highly sensitive gum tissue to assume its normal condition of low grade sensibility.

5th. It has proven a corrective for many unnamed inflammatory conditions which, although troublesome and annoying to both patient and dentist, have been treated with a degree of indifference by the operator and suffered as a necessary condition by the patient.

Reference is here made to such troubles as alveolar fistulas opening on the gums, and having periods of purulent activity, with slight pain and little swelling, but attended with troublesome inconvenience; and to roots which may have been crowned, but from accumulation of irritating exudations at the cervical margins have become loose and sore to pressure. It has been to me a surprise and gratification to see these conditions without exception take on healthy action—fistulas to close; teeth to tighten, and the gums to change from a congested or inflammatory state to a condition of normal sensibility, striation and festooning.

6th. It may be said without fear of successful contradiction that this treatment is absolutely the *preventative* of pyorrhea; and further, it is the natural method of cure where it exists. The theory that pyorrhea is of constitutional origin, dependent on the presence of uric acid in the blood, is not in accord with clinical observation or experience, and is without substantiation in fact. Pyorrhea is a disease of local origin due wholly to the retention of toxic matter on and about the teeth. It may be heightened by constitutional tendencies, and it may present constitutional effects; but the former are themselves engendered by the disease. My conviction is firm that constitutional expression never precedes the local irritation but that it is always dependent upon it, and that failure to apprehend incipient causes is responsible for the confusion and dread which shadows this trouble in the minds of the profession. What proof so indisputable to establish the local origin of pyorrhea as the fact that whatever good impression has been made through treatment has been by the use of local means and methods alone. The many and varied instruments for the removal of deposits; the painstaking and persistent efforts of the honored and lamented Dr. Riggs, and the multiplicity of remedies (medicaments) all point to the one origin. The beginnings of pyorrhea are not marked by any violent uncontrollable attacks, but are rather the gradual growth of the progressive enmity of a lurking foe. Thus it is that gradual gum exudations, undisturbed oral concretions, and the gatherings of food particles commingle and unite at gum margins in a work of irritation, which is in every case the first cause of pyorrhea.

Oral prophylaxis as here advocated is the one rational preventative, as it is the one remedy for the developed disease in all stages and under all conditions. When wasting of alveolus and gum tissue has not progressed to uncontrollable loosening of the teeth, frequent and persistent prophylactic treatment, supplemented by the use of germicides and mild antiacid protective remedies, warrants in every case a favorable prognosis. —*Extract Digest.*

MOULDED TOP AMALGAM CROWN.

BY DR. W. E. HALSEY, BROOKLYN, N. Y.

I wish to describe a simple method of restoring to usefulness the roots of a molar where no part of the crown remains. We are often called upon to restore such teeth, either for simple masticating, or for the attachment of a bridge or artificial denture.

After healing the alveolar abscesses, which usually accompany such conditions, fill the extremities of the canals with gutta percha points coated with a good antiseptic paste, and ream the canals to receive metallic dowels. I prefer square iridio-platinum of proper size and tapered to meet requirements.

Two dowels are sufficient in any molar and should project from one-eighth to one-quarter inch when cemented in place. I prefer making a mix of soft amalgam, and then mix cement and seat the dowels, using a surplus of cement sufficient to cover the exposed ends of the roots, working the amalgam into the cement while both are plastic. Clean the root edges of cement and contour up until ends of dowels are covered and the shape of tooth is restored except the cusps. The top should be left flat with about three thirty-seconds of an inch space for articulation.

At the next sitting the crown may be finished with an amalgam top moulded in one of several different ways. I usually get a sufficiently accurate top by filling into the counter for such cusps of an ordinary die plate, but an impression can be taken of a neighboring molar in the mouth, from which an excellent top may be made.

The top must be made during patient's absence so that the amalgam shall be thoroughly set when used. The top is attached by cold soldering, and an excellent articulation may be secured by careful work.

By cold soldering I mean to brighten the surface, and begin with a fresh mix which is soft; burnish it on to the surface, and you can add to it as you wish. You do not need any undercuts. It adheres to the original filling, and you cannot break it away. The moulded top is made separately and it is fastened to the third mix.

The crown should be polished at still another sitting, and when finished is certainly an excellent operation both in appearance and utility.

The upper portion of the crown and cusps should always be made of contour amalgam, which, when polished, always maintains an excellent color.

You often have occasion to build up the stump for a gold crown. I often build up in this manner. Where I do not use gold crowns in the back of the mouth, in twelfth year molars or wisdom teeth, I much prefer topping a crown in this manner. I will give just one point in regard to making them. I use the die plate, because I can swage the amalgam into it. Take a piece of flat pine to cover the opening, make it a little more than full, and cap it with those soft pieces of pine.—*Extract from report in Items of Interest.*

ICHTHYOL USED SUCCESSFULLY IN TREATMENT OF PYORRHEA ALVEOLARIS.

BY DR. H. C. FERRIS, BROOKLYN, N. Y.

I found by washing out the cavity with a fifty per cent aqueous solution I got good results; but by combining it with lanolin, equal parts, I have had marvelous results in the most acute inflammatory stages of the disease, sometimes treating a pocket but once to get a healing.

My method of introducing this mixture, which is rather dirty-looking, and has an unpleasant odor, is to take a small collapsible lead tube, remove the top and solder a platinum or gold point to it. Fill the tube with the ointment, and it is always ready for immediate use. Fill the pockets with the mixture, and the lanolin will retain the drug for about five or six hours. This treatment will relieve the most painful conditions.

The drug has proven very satisfactory, and I think that it is worthy of a trial. If any of you find a difficult pus pocket that is very painful, the application of ichthyol will give almost instantaneous relief—at any rate, within a couple of hours. In pus pockets, having a fistulous opening, patients suffering so they could not masticate on the tooth, after one treatment have returned to me with almost normal looking gum.

I use a fifty per cent solution aqueous to wash out the pus pocket, and I use the lanolin with the idea of having it stick fast. It is syrupy and quite thick, but fifty per cent is a useful solution.—*Extract from Items of Interest.*

HOW TO BLEACH DISCOLORED ENAMEL OF TEETH WITH LIVING PULPS.

BY DR. JOSEPH HEAD, PHILADELPHIA.

The tooth should be isolated with the rubber dam, the enamel should be thoroughly dessicated and dried. The cotton soaked in pyrozone should be applied over the stain and the steam should be driven into the stain by means of a hot instrument until the enamel is thoroughly infiltrated with this hot steam pyrozone. To a certain extent, of course, the oxygen has to be liberated by this process. But there is pyrozone within that tooth structure which contains nascent oxygen unliberated. If the hot instrument is applied on those stains not only is the steam driven in, but also driven out by the hot instrument, and the nascent oxygen is let loose within the enamel itself. I am sure, gentlemen, those of you who have tried this process will bear me out, there is a distinct whitening. The heating with the hot instrument on the enamel I consider one of the most vital steps. It is absolutely the reverse of that which is obtained by drying with the hot air blast That simply drives out the pyrozone as an evaporation of a liquid when it should come out in form of liberated nascent oxygen.

Concerning the hurting of the patient I would say that we have all noted that a greater sensibility in the enamel is to be found between the ages of ten and twenty, but we also find that between those ages there are comparatively few stains. The stains that trouble us the most come between the ages of twenty-five and forty, and when the patient reaches the age of twenty-five or thirty the hot instruments can be used with comparative ease.

I do not advise the use of the hot instrument any hotter than the patient will stand it, otherwise you will find that the bleaching process will come to a premature termination. But I will say that with care and judgment, good results can be obtained. —*Extract from Items of Interest.*

USE OF CARBOLIC ACID IN SETTING CROWNS.

BY DR. F. W. STEPHAN, CHICAGO, ILL.

The element of pain in the setting of crowns has never been given very great importance. And yet I have seen the most severe spasms of pain caused by this operation which has made the patient dread the thought of a crown thereafter. The pain seems to be caused by the irritating cement liquid coming in contact with the hypersensitive gum tissue.

The application of cocaine has proved very unreliable, and in some cases seems to have even aggravated the trouble. There is an advantage in setting a crown temporarily, for a few days till the gum tissues become fully adapted to the new conditions. This, however, does not always insure painless setting. To secure this result the following method has been used with uniform success:

The crown being finished, its inner surface is painted with carbolic acid ninety-five per cent. The tooth is then dried, and the crown placed over it in position, as it will be when set. It is allowed to remain there for a short time. The small quantity of carbolic acid which escapes under the gingival edge anesthetizes the gums. The crown may then be set without causing pain. Due care must be exercised to prevent cauterizing too extensively with the acid; though this is not difficult with a well-fitting crown. A little alcohol should be handy to overcome the cauterant effect as soon as the operation is over. —*From Items of Interest.*

A METHOD OF MAKING SOLID CUSPS FOR CROWNS.

A. B. BOYD, CARLISLE, KY.

Instead of investing the tooth in moldine, I take the rubber ring that comes with the Mellotte's outfit and another ring of metal that will fit over it tight. I punch a hole in a piece of dam and then stretch it over one end of the rubber ring, holding it in place with the outside ring. I then select the tooth I wish to use and push through hole in dam to depth I want the cusps to be. Then set ring with tooth adjusted on partly open bench vise or other convenient place and pour in the fusible metal. Either natural or artificial teeth can be used for model.—*From Items of Interest.*

TREATMENT OF THE PULP.

BY A. H. PECK, M.D., D.D.S., CHICAGO, ILL.

First let us consider those cases in which it seems necessary to devitalize, and in a general way I may state the following instances: In most cases where the roots of teeth are to support bridges, or are to be crowned, the pulps should be devitalized, even though the teeth may be sound, or nearly so, and briefly, for these reasons: It is always necessary to do so much cutting to properly shape the natural crowns for the artificial ones, that it is impossible, in the majority of cases, to do so without causing intense pain to the patient; another reason is, that often in so shaping the natural crowns, some horn of the pulp is nearly exposed and thus subjected to the irritating effects of the cement and to those of thermal changes, thus giving rise to a slow form of irritation, which continues and becomes greater, until finally inflammation sets in and the pulp dies. Another reason, and one which, in my judgment, cannot be overlooked, is the fact that nearly all cements, the phosphates, contain more or less arsenic. This has been proven conclusively, although some claim that the amount of arsenic contained in the powder is so small that it cannot cause trouble, but I have seen numerous cases where I am satisfied that trouble has resulted from this source. It is my judgment that in setting crowns with oxyphosphate of zinc, where the teeth are extensively cut, there is danger of causing devitalization. But the chief reason for devitalizing is the one first mentioned.

A second class of cases in which it is nearly always necessary to devitalize previous to filling or other operations is those in which the pulps have been exposed to the irritating effects of saliva, micro-organisms and other substances in the mouth by the process of caries. There is not one such case in a thousand, in my judgment, that will survive long under a capping.

Another class of cases is those in which pulps are accidentally exposed as a result of careless manipulation of burs, and occasionally hand instruments, the pulp tissue being punctured or lacerated to a considerable extent so that more or less hemorrhage occurs. It does not matter what the condition of the patient, whether young and healthy, or aged and infirm, in the great majority of cases the pulps will die under capping.

A fourth class is those in which pulp nodules have formed. This is one of the most difficult pathological conditions to diagnose with which we have anything to do.

It may be stated in a general way that the chances for saving pulps in the teeth of persons living in malarial districts, other things being equal, are much less than in more healthy localities. If there is any doubt as to whether it is best to try to save pulps for such individuals the safer procedure is to devitalize.—*Extract from article in Dental Review.*

ORAL SEPSIS: AND SOME OF ITS EFFECTS.

BY STANLEY COLYER, M.R.C.S., L.D.S.

A perfect dentition in a healthy mouth offers no point for the lodgment of food that cannot be cleansed by the tongue. But let caries commence, and a spot is formed where organisms may develop under new conditions. The caries extends, and in time the tooth breaks down; a space is left between it and the adjacent tooth, into which food is forced. If this food is of a carbohydrate nature—as it so often is in children—the product of its fermentation will be acid. The acid inflames the gum; a catarrhal inflammation is the result; and thus a new medium is exhibited for organisms to grow in. Coincidently with this, the advancing caries invades and infects the pulp; the pulp inflames—and in this condition has been shown to be infected with organisms—and in time dies: and down the root canal a mass of gangrenous material is left, which, as the frequent occurrence of alveolar abscess proves, contains pyogenic organisms. In many cases, however, the inflammation which this gangrenous mass produces is of a more chronic and productive nature; thus are formed the little masses of tissue found at the end of so many septic teeth, and commonly known as the abscess sac—here is an important point of infection.

In certain mouths, nearly always dirty ones, and more frequently in adults than children, one will find pus exuding from the pockets of gum around the teeth. The trouble is generally of a very chronic nature, and may collectively be termed pyorrhea alveolaris.

It is thus obvious that we not only may get absorption of the products of the bacteria at the point where they are growing, but that we may have a constant swallowing of pus, of organisms, and of their products. It is not surprising, under these conditions, that at times we find that the septic conditions of the mouth are the cause of, or at least have some relationship to, certain general troubles.

Certain of the effects that may arise from, or are associated with, oral sepsis.

For convenience of description, the effects of oral sepsis may be arranged under certain headings, as follows:

1. Local, such, for example, as the various forms of stomatitis, tonsilitis, pharyngitis, etc., subjects which I do not intend discussing.
2. Glandular.
3. Gastric and intestinal.
4. Toxic effects.
5. Remote and general infections.

(2.) *Chronic lymphadenitis of the cervical glands.*

That chronic enlargement of the glands of the neck is often associated with oral sepsis is, I think, undoubted. Odenthal, of Bonn, examined 987 children. He found, roughly speaking, that ¼ of them had no caries and no glandular enlargements, that almost ¾ had carious teeth with enlarged glands, and that only in a very small percentage, namely, 7 per cent., were there carious teeth without glandular enlargement.

Mr. Tubby divides glands in the neck into tubercular and pretubercular, and the fact that some are amenable to treatment and others are not, and that the tubercle bacillus has not been demonstrated in all of these removed by operation seems to justify this decision, and suggests, perhaps, that the nature of the infective agent may vary.

If this be true, then oral sepsis plays a very important part in the production of these tubercular glands, and acts by producing a low form of inflammation of the glands, which renders them more susceptible to the onslaught of the tubercle bacillus from whatever quarter. Direct infection does at times occur, as the following two cases show.

The first case is one recorded by Starck. The patient was a boy, aged 18, who had always been healthy, and who developed tubercular glands. Carious molars were present on both sides. Glands and teeth were removed, and the tubercle bacillus demonstrated in both.

In the second case, the patient had a large abscess in the jaw. The suspected tooth was removed and a large abscess sac found attached to the root; at the same time some glands in the neck were removed. The sac was proved to contain tuberculous material, and its walls were infiltrated with tubercle; the glands also were similarly infected.

These two cases serve to show that the possibility of direct infection is not to be lost sight of. But that the great majority of the glands are of the pre-tubercular type is shown by the simple fact that if one removes the cause the glands decrease in size. At times these glands, due merely to oral sepsis, may attain a large size. For example: a boy of 11 had a large lump situated behind the angle of the jaw on the right side; the lump was about half the size of an orange and of a softish consistency; no individual gland could be made out. On examination of the mouth all the first molars were found to be carious, especially the maxillary molars, which were merely represented by their roots and covered with inflamed gum. The right lower molar was removed, and three days later the right upper molar,' at which time there was no perceptible change in the mass. A fortnight later there was a marked decrease in size, and individual glands could be distinguished. At the end of another week there was no external swelling, the original being represented by two or three moderate sized glands.

Whether the enlarged glands of these children would become tuberculous if placed under suitable conditions it is impossible to say; but arguing upon the premise that the resistance of a chronically inflamed tissue is reduced, one feels inclined to believe in the probability. It is not uncommon, as you know, to see three or four children of the same family with marked tuberculous glands and very septic mouths; and the question that arises in one's mind is: if the mouths of these children had been kept healthy, would they have developed tuberculous glands?

Before leaving the subject, there is one important point I would like to touch upon, and that is: that in children, especially rickety ones, the first permanent molar, which is erupted at the age of six, is frequently defective in structure, and falls a prey very early to caries; in a short while the tooth is destroyed and is merely represented by dead stumps containing gangrenous pulps. You will find on removing these teeth that opening into the apex of the root is very patent, and thus allows the septic matter to soak through easily into the surrounding tissue. This is the reason that between the ages of seven and twelve the worst glands due to teeth are seen.

(3.) *Gastric Effects.*

The tolerance of the stomach for large doses of purulent matter from the mouth year after year is one of the most extraordinary parodoxes that a dental surgeon ever meets with. You may see a patient with marked pyorrhea alveolaris which has existed for several years, and he will tell you that he enjoys splendid health and an excellent digestion. On the other hand, cases constantly occur in which the dyspepsia is obviously maintained by the sepsis, and is relieved with its removal. Why is this?

Dr. Hunter inclines to the belief: "That there is a limit to the capacity even of the stomach, to resist indefinitely for periods of years the continuous presence of pyogenic and other organisms derived from cario-necrotic conditions of the teeth."

It is possible, as Dr. Hunter says, the organisms in themselves may be able to give rise to septic gastritis; but it is probable that many of these cases commence in ordinary simple catarrh of the stomach, brought about by hurrying over food or insufficient mastication from any other cause. Given this catarrh, it is possible that the septic organisms from the mouth may find the new conditions suitable to their growth; just as we know, the cholera vibrio and the diphtheria bacillus act best upon slightly inflamed surfaces.

Once this septis gastritis has started, the constant influx of the mixed infection from the mouth is sufficient to maintain it; and so long as the supply is forthcoming, so long will the gastritis last.

Dr. Hunter writes: "I find that the effect is not limited to the mere fermentation of food products, but that actual infection of the mucosa with pathogenic organisms itself may occur. * * * A septic catarrh is set up, never to be got rid of, but continuously sustained by the influx of septic organisms into the stomach; if continued long enough, the chronic catarrh leads to the usual effects of a glandular catarrh, viz., glandular atrophy, with increase of intestitial tissue around."

At present, so far as I am aware, cases of septic gastritis in children have not been recorded: but that it may occur seems highly probable; and the non-appearance of any records on the subject is no justification for doubting its existence.

(4.) *Toxic Effects.*

Dr. Hunter records three cases of "toxic neuritis," in all of which the association of cause and effect are sufficiently convincing. But as none of these cases have occurred, or, at least, have been recorded in children, I pass on to two other conditions which I have placed under this division of my subject, viz.:—

(A)—*Irregularity of the Heart.*—.

In the Lumleian lecture, 1899, Sir R. Douglas Powell records the following case:

A married woman, aged 36, had for two years suffered from cardiac irregularity and frequent attacks of spasmodic heart pains. She attributed her trouble to previous mental worry. Her symptoms became so bad that she was unable either to go into society or to receive friends. Her heart was irregular and intermittent; but there was no valvular disease. Her teeth were extensively decayed, and her gums very unhealthy. She refused to have her mouth treated, and went through a course of Nawheim baths and resistance exercises, and her digestion was attended to, with only slight relief. After this she consented to have her mouth treated, and from that time her cardiac symptoms ceased.

Sir D. Powell adds, "in this case there were no marked dyspeptic signs, and the cardiac symptoms seem to be due chiefly to the reflected irritation of decayed teeth." Whether this was so, or whether the case was not due rather to toxic absorption, makes no difference to the clinical fact, that from the moment her mouth was treated her trouble ceased.

(B) *General Debility.*

It is in cases of general debility due to oral sepsis that the most convincing results are obtained. They are convincing because they are of everyday occurrence, and one has not to hunt through medical or dental literature to find isolated reputed cases.

You will find many causes put down to this condition, but in no book on medicine, so far as I know, has oral sepsis been included; yet it has been familiar to many for years.

I mentioned before how patients, on the removal of their septic teeth, in almost all cases, immediately improved in health. In addition to this they nearly always increase in weight, and frequently they will tell that they never felt better in their life. In children the change is just as marked; from the pasty-faced, dull, and listless child, you get an alteration that is almost magical.

In these children, the best work a dental surgeon can do, at any rate for the poor, is to carry on a relentless war against their septic mouths. "*Better no teeth than septic ones*" is a good maxim to work upon, and one that everyone with the care of children should bear in mind. You will be told if you remove this tooth or that tooth you will crowd the permanent teeth and disfigure the child. True, you will! But you have to remember something that is far more important, that you have to tide a child over some of the most difficult and critical years of its life, when it is easy to undermine its future health.

(5.) *Remote and general infections.*

Cases of septicæmia, where the infection has been traced to the mouth, are occasionally recognized, though possibly not so often as they should be; one still reads that the point of entry of the organism was not discovered—and yet no examination has been made of the mouth.

The same remark applies to cases of ulcerative endocarditis. Dr. Henry Jackson gave a summary of 59 cases which he had analyzed. In a great many no history of any previous illness could be obtained. Instances in which some etiological relation was established were: 4 cases following childbirth or miscarriage: 3 due to gonorrhœa; and 1 case after pneumonia, tubercle, carbuncle, and abscess; in 4 other cases foci of suppuration were found after death—where, he does not say. Of these 59 cases then, in only 15 was the cause, or rather the point of infection, discovered. No mention and no search apparently, was made into the oral conditions.

An interesting case of this nature was reported by Dr. Wm. Ewart in 1900.

The patient was a groom, aged 26; he had a sudden seizure whilst at work, which left him apasic and paralyzed on the right side. A careful examination revealed nothing but a systolic mitral murmur. The pyrexia and other peculiarities of the case suggested a complication of diseases, and Dr. Ewart's house physician suspected during the first few days enteric fever in association with hemiplegia. * * * The discovery later of a changing and increasing murmur defined the case as one of vegetative endocarditis. * * * The state of the mouth was unusually bad. Besides stomatitis, there was an exceedingly foul condition of numerous stumps. The fætor of the breath was intense, and reminded one of the worst smell of decaying or macerated dead-bone. Some of the hollow teeth contained plugs of offensive decomposing material. There were no glandular enlargements at the angle of the jaw.

At the post-mortem examination the aortic valves were found to be affected. A large rough greyish vegetation was attached to the ventricular surface of the left posterior aortic cusp at the point of insertion of which an ulcerative perforation had formed. The nose, throat and ears, like the rest of the body, presented normal appearances.

Dr Ewart's remarks on this case are very interesting and encouraging. He points out how Dreschfeld in an article admits the occurrence of primary infective endocarditis side by side with infective endocarditis arising from obvious sources. The nearest approach to any connection having been suggested between infective endocarditis and infections of the mouth is, so far as I can find (says Dr. Ewart), a statement quoted by Dreschfeld from Brissaud and Gilbert that in one of their cases gangrenous stomatitis and ulcers on the tongue and lips were observed.

In summing up Dr. Ewart says: "The choice lies between classing it (the case) in the group of primary or idiopathic cases, because, had all examination of the mouth been omitted, no disease, recent or old, would have been discovered throughout the body; or on the other hand, giving full recognition to the fact that the mouth was profoundly diseased, that it was infested by organisms, and that it presented large ulcerated surfaces through which access to the circulation must have been given to infection. *To recognize the exclusive presence side by* *side of these two infective processes and to fail to submit the possibility of some connection having existed between them, would be to neglect the method of pathological inference which has hitherto been followed with so much success in the etiological study of disease."*

At the same meeting at which Dr. Ewart reported this case, Dr. Alec. R. Coldstream stated that he had met with a similar one. The case was in a girl of 13, with fatal results in four days, and following on a gumboil which was incised.

I think one would have to be rather heretical to refuse to believe in Dr. Ewart's case; and if we accept it, there seems little reason to doubt that many other of the "idiopathic" cases might have been traced to the mouth.

The treatment.

The treatment of oral sepsis lies principally within the domain of the dental surgeon, and as such need not be mentioned. Much can be done locally with mouthwashes. In bad cases where radical treatment is inadvisable, the local application of strong antiseptics as carbolic, 1 in 20, or hydrogen peroxide, especially the latter, will be found very effective. Children should be trained early to cleanse their mouths, and should be given hard food to eat, and taught to thoroughly masticate it. Nothing can be more pernicious, from a dental point of view, than the soft pulpy pultaceous food so many children are fed upon. The jaw and tongue have little to do, and so perform their work inefficiently. Caries result; and caries is forerunner of oral sepsis: the prevention of the former is the prevention of the latter.

Such then is a brief and imperfect account of oral sepsis and its results. I have restricted myself to those portions where I have had definite knowledge to go upon, and have treated more fully parts which concern children. For the latter reason I have left alone its relationship to certain cases of gastric ulcer and to pernicious anæmia, a subject that has been so laboriously and thoroughly worked out by Dr. Hunter.

Why oral sepsis has been laid aside so long, and its etiological possibilities not recognized, it is impossible to say. Even now it is hard to convince some people that an organism grown in the mouth may be just as dangerous as one living on an ulcer. But as time goes on more and more are coming to recognize the extreme importance of oral hygiene; so that the day cannot be far distant when oral sepsis will be more universally recognized as an important factor in the causation of disease.—*Extract Dental Record.*

A WARNING TO YOUNG BRIDGE WORKERS.

BY J. C. BREWER, D.D.S.

Some of our patients having heard so much of bridge work they will come to you and insist on a bridge, and perhaps on examination we find the gums have receded around the teeth that should be used for abutments caused by diseased gums or natural absorption of the tissues by the adjoining teeth being extracted long since. My advice would be to let the other man do the work.

Again a nervous lady will call and ask you to bridge over her misfortune, and we find a healthy mouth; the abutments with live pulps, and teeth so sensitive that she will scarcely bare you to touch one with a corundum wheel; you say to her that you will have to devitalize the teeth and remove the nerves, but she says, no, doctor, I can't stand that, and she makes her exit a little more unceremoniously than when she came in. Perchance she will go to your neighbor; he will, perhaps, after he and his patient almost sweat drops of blood, complete the work, and after the lapse of a few days she calls on "her dentist," and most positively states that the bridge will have to be removed, as she hasn't slept for a day and night with aching and sensitive gold crown, and then her thoughts turn to you and she has you pictured in her mind as the most conscientious of the two.

Bridge work is costly, and always be sure that every condition of the mouth warrants you in attempting to do such work, and you will save many a restless night for yourself and patient.

TO RELEASE PLASTER IMPRESSIONS.

BY D. L. ABER, D.D.S., PITTSBURG.

How often after we have taken plaster impressions do the patients complain that they thought we would pull the whole top of their heads off in getting the plaster out of the mouth—that it was worse than having the teeth drawn, etc. The impression adheres to the mouth because the plaster while setting absorbs the moisture from the tissues. The remedy for this trouble is as follows: When taking an impression let the plaster set quite hard, say from three to five minutes. Then hold up the lip and place the nozzle of your water syringe between the muscular tissue and the edge of impression, and gently force a little water between, repeating the operation all around the impression. In nine out of ten cases it will drop down without any pulling or even touching with the hand. This method may not be new, but I have used it for some time with great satisfaction to patients as well as to myself, and some dentists may be benefitted by the suggestion.—*Digest.*

SUGGESTIONS

THE USE OF PLATINUM AS A BACKING—H. J. GOSLEE.—As porcelain facings are more or less translucent, the presence of a gold backing is frequently objectionable in the blue and lighter shades, because of the yellowish cast imparted to them; hence the placing of a surface of platinum next to the facing is sometimes indicated as a means of preserving the original color, or of effecting the least, or more desirable, change in it.

For this purpose, *platinized gold* is employed, and possesses the advantage of affording a surface of either gold or platinum, as the case may require. A more convenient method, however, is to back up the facing in the usual manner, and then insert a piece of platinum foil (1-1000) over the desired area between facing and backing, just previous to permanently attaching them by bending the pins, and finishing the backing to its proper adaptation; by which means equally good and perhaps quicker results may be obtained.—*Extract Items.*

A COMMON FAULT WITH CROWNS—H. J. GOSLEE.—A common fault with many crowns, otherwise artistic, is an undue prominence at the neck, which is caused by not cutting the labial portion of the root *short* enough, or by the selection of a facing too thick or bulbous at this point, and the failure to properly reduce it, by grinding, before the completion of the crown.—*Extract Items.*

ROOT-CANAL FILLING—C. E. KLOTZ.—I fill with chloro-percha and asbestos fibre. The chloro-percha is of the consistency of cream; this is pumped or worked into the canal till it begins to get a little stiff from the evaporation of the chloroform. I then take a few fibres of asbestos and work it up into the canal; this pushes the chloro-percha ahead of it to the very apex; keep on adding chloro-percha and asbestos till the canal is filled. The asbestos fibre is not an easy article to handle at first, but once accustomed to it, I think you will like it, and will not find it at all difficult. The instruments used for it are nerve canal cleaners with the barbed part cut off. The asbestos fibres are wound around the end of the instrument, then moved up and down slightly to loosen them, so that they will slip off easily when placed into the canal, and the instrument withdrawn. Fill the cavity of the tooth with whatever filling material you desire. I prefer to fill teeth that have been badly abscessed with cement, and later with a permanent filling, particularly if it is to be a gold filling.—*Extract Dominion Journal.*

THE GILBERT CUSP-PLIERS.—By using the Gilbert cusp-pliers, time, gold, and noise are saved. These pliers carry interchangeable dies and counter-dies for the production of every cusp that may be desired in soldered or crown-work. The cusp is produced by a single pressure of the pliers, avoiding the annoyance of hammering it up with a die-plate.—*Items of Interest.*

USE OF COCAINE.—The most important rule in the use of cocaine is that it should be well diluted. There is no occasion for using hypodermically a denser solution of cocaine than one per cent. for dental operations of any kind, except, obtunding dentin. Fifteen to thirty drops of a one per cent. solution of cocaine can be safely used on most people without harm.—*Register.*

USE OF PEROXID OF SODIUM POWDER—F. H. LEE.—The use of dry powder of peroxid of sodium, recommended in septic pulp canals by Dr. Charles Peters, of Syracuse, overcomes the objection to using the solution, which is very difficult to make. After adjusting the dam or napkin, a dry broach is dipped in the powder and worked into the canal. This is repeated until you are satisfied that the root is sterilized, and then the contents of canal are saturated with a five-per-cent. solution of sulphuric acid, the effervescence of which forces out all debris.—*Extract Digest.*

Refining Gold Scrap.—To those dentists who wish to refine their gold scrap themselves, the following plan is recommended: The scraps should be dissolved in a small quantity of nitro-muriatic acid—warming hastens the solution—the solution should then be diluted with about three times its volume of water, and nearly neutralized by adding a small quantity of sodium carbonate. The solution should remain slightly acid or the gold will be precipitated; in that case redissolve by adding a few drops of nitro-muriatic acid. Filter the solution, washing it through with water, then add slowly while stirring, a concentrated solution of ferric sulphate, acidulated with a little sulphuric acid. Set the solution aside for twenty-four hours, so that all the gold is precipitated, then decant the liquor through filter paper to catch any particles of floating gold, wash the precipitate out of the vessel into the filter paper, roll up the paper and fuse with plenty of flux.—*Off. and Lab.*

To Avoid Repolishing an Entire Gold Piece after Repairing.—*Zahnkunst* advises the following procedure in cases where repairs have to be made: The plate after being painted with a solution of borax, which is allowed to dry, is invested and soldered. After the soldering the plate is boiled in a weak solution of sulphuric acid. By this method, it is claimed, only the soldered part will have to be repolished.—*Exchange.*

Gold Broaches—H. W. Gillett.—Gold clasp wire broaches may be filed down and used for coaxing acids into fine canals if it is desired to use that process for enlarging them. With such broaches very few canals are impenetrable.—*Extract Items.*

Use Dry Tooth-Brush—G. A. Maxfield.—It has been my custom for years to instruct my patients to always use a dry powder on a dry brush. They are thus able to get the full benefit of the powder and to fully remove the secretions from the teeth.—*Cosmos.*

HEMORRHAGE—N. B. SIBLEY.—A few days ago I had a very obstinate case of hemorrhage after the extraction of two wisdom teeth—one upper and one lower. I tried tannin and persulphate of iron, all to no avail. I then told my friend, Dr. Connor, about the case and he gave me the following formula, which stopped the hemorrhage and without pain. It was a case of secondary hemorrhage; commenced to bleed four days after the teeth were extracted:

℞. Rosin.
Carbolic acid, 95 pct.
Chloroform a. a., 4 drachms.

It will be worth while to any one to jot this down, as they are likely to need it some time during practice.—*Amer. Dentist.*

TO BEND A CROWN-POST WITHOUT STRAIN ON THE CROWN.—Grasp the post with a pair of crown contouring pliers. The convex jaw of the pliers forces a portion of the post into the concave jaw, and thus bends it without danger to the porcelain crown.—*Pacific Medical Journal.*

DRESSING DOUBTFUL PULPLESS TEETH—DR. GILLETT.—For many years it has been my habit, when dressing doubtful pulpless teeth, to puncture the temporary stopping with a small point. This small opening provides an effective vent, but is not easily penetrated by the fluids of the mouth.—*International.*

REGARDING "SLOPPY WORK"—DR. GILLETT.—I feel that one of the things that should be impressed upon the younger practitioners is that, regardless of extension, a filling is a failure if not mechanically perfect to begin with.—*International.*

PROPER CONTOURING—S. E. DAVENPORT.—If small approximal cavities are prepared without being extended much beyond the zone of actual decay—I care little what material is used, so long as it is one that has proved to be fairly durable in that particular mouth—care being taken to shape the fillings so that they will present but a small point of contact either with the filling in the adjoining tooth or with the tooth-structure itself, such fillings will be very durable in mouths of average cleanliness. It has seemed to me that papers and discussions upon this subject have given too little attention to this point of proper contouring.—*International.*

THE ADVANTAGE OF CORRECT OCCLUSION—H. J. GOSLEE. —I think many pulps die in teeth bearing crowns that have a faulty occlusion, and I wish to say we should be more careful in the construction of all of our posterior crowns to secure as good occlusion as possible, and in bridge-work we should use an anatomical articulator as much as in artificial dentures. One reason why pulps die in teeth used as abutments, and the frequent necessity for repairing broken faces, is due to faulty occlusion. If we used an anatomical articulator, we could overcome many of those mishaps.—*Extract Items.*

A SUGGESTION ABOUT BRIDGE-WORK—JOS. HEAD.—We must remember that every appliance we put in the mouth that places a tooth in an abnormal condition is a disadvantage, and therefore wherever a bridge can be so constructed that the normal natural movement of the teeth can still be made, we should never neglect to retain that motion. For instance, where one or two teeth are to be put in between adjacent abutments, it is frequently advisable to have one abutment a simple crown with a slot in it and the entire bridge fastened to the other abutment, so there will be a slight motion, but the real rigidity will be maintained when mastication is had. A floss silk can in almost every instance be worked down there, and as much cleanliness obtained as though a simple crown were used.—*Extract Items.*

INCISING CROWNS OF SOUND TEETH—W. P. COOKE.—For a general rule, when the case is such that by the incision of the crown a bridge can be put on that will look better, fit better and last longer than by retaining the crown of the tooth, I should incise it. In some cases I should do so when two of the above points are covered. I am of the opinion that we have been too conservative in the matter of cutting away the teeth and removing the pulps in cases that require bridge-work.—*Extract Items.*

PREPARATION OF ROOTS FOR CROWNS—F. A. PEESO.—The preparation of the teeth and roots is by far the most important thing to consider in the placing of a single crown or a bridge, and if this is properly done, the bands accurately fitted and the articulation correct, the question as to whether or not a tooth has a living pulp is of secondary importance, provided if living it is healthy. If a tooth is not properly prepared I do not think it is possible to fit the band accurately at the neck. The result is that it cuts into the gum; the cement presents a rough, jagged surface to the soft tissues, eventually setting up an irritation which may be communicated to the pulp and necessitate its removal, but the trouble under these conditions will not end with its removal, nor will it be improved. To properly prepare a tooth the contour must be entirely removed so that the sides are nearly parallel or the tooth is slightly larger at the neck, about one-sixteenth of an inch below the gum line. If this is done in every case and the bands are accurately fitted, I think the work will prove satisfactory whether the tooth has a living pulp or not.—*Extract Items.*

TREATMENT OF TEETH WHERE PULP HAS DIED UNDER A CROWN—F. A. PEESO.—Should a tooth with a living pulp, which has been crowned, at any future time give trouble, there is nothing to prevent its being treated the same as any other tooth without removing the crown. It can be opened through the cusps, and after treatment the cavity can be filled with gold.

Where a tooth is not sensitive or only slightly so, and can be ground to the desired shape with very little pain to the patient, I think it perfectly justifiable and advisable to preserve the pulp, but where it is extremely sensitive and tender it would be inflicting needless torture on the patient to prepare it as it should be prepared without first removing the pulp and filling the canals.—*Extract Items.*

Abortive Treatment in Forming Alveolar Abscess—W. C. Davis.—Tincture aconite, 10 drops. Tincture echanacea, 20 drops. Liquor calcis, two ounces. Water, 10 ounces. Sig. Teaspoonful every hour.—*Extract Items.*

Band Does Not Prevent Splitting of Root—J. H. Prothero.—The claim that the band prevents the splitting of the root, I believe to be an error; the root at the gum margin is larger, and stronger, and the fracture begins at the extreme end of the pin, *certainly* at the weakest point of the enlarged canal. This canal should be formed equidistant from the periphery of the root and tapering as the root tapers. The pin should be made to conform to this opening its entire length so that there will be no wabbling in the direction of stress, and it should be made of rigid material.—*Extract Review.*

Advantages of Para Rubber—J. E. Dunn.—There is an advantage of the use of pure para rubber in the construction of full or partial dentures over the rubber commonly used. There is less odor, no impurities. Can be vulcanized to be rigid and stiff or with a distinct "springiness" which admits of bending without breaking. This quality renders this rubber of especial advantage in making lower partial dentures. The liability to breakage is decreased many fold because of the temper this rubber has when so vulcanized.—*Review.*

Filling Root Canals—G. W. Dittmar.—Canal in an aseptic condition is washed with alcohol to displace moisture. Then walls moistened with sandarac varnish of a creamy consistency, then cones of gutta-percha packed thoroughly into canal. The sandarac varnish acts as a lubricant for the cones and the claim is made that this insures a more thorough adaptation of the root filling, than by the use of a solvent, such as oil of cajuput or eucalyptol.—*Review.*

Attaching Bridge Without the Use of a Crown—R. Rogers.—The method is to drill a hole in the tooth, to which the bridge was to be anchored, to the lingual of the pulp and parallel to long axis of tooth. Then heavy gold plate is swaged and trimmed to fit the lingual surface of tooth. Then plantinum pin is inserted through plate into canal and pin made fast by solder. This serves as one anchorage for the bridge, being soldered to it as a crown would have been.—*Review.*

GOLD INLAY—L. L. DAVIS.—Took impression of cavity in cement, then made a counter-die of cement of another color, using Mennen's borated talcum powder to separate the two, swaged a matrix of pure gold and then filled the matrix by melting into it 22k. gold scraps, then trimmed and set with cement. This sort of inlay was recommended of especial value in buccal cavities in molars and bicuspids where the cavity extends far below the free margin of the gum.—*Review.*

PLATINIZED GOLD FOR INLAYS—DR. GEO. EVANS.—Showed the application of rolled platinized gold to the formation of gold inlays for cavities in the front teeth, considered too soft to properly permit of the insertion of gold foil fillings.

His method was after procuring a good matrix to build on the surface small particles of gold plate, and fuse together with solder until the contour was nearly reached, then contouring a tip, say to an incisor, with crystal gold, and flowing solder into that. Very beautiful contours were worked up in that way and the results showed highly satisfactorily for that character of work.—*Review.*

EDITORIAL

THE NEW DENTAL BOARD.

The members of the new dental board who were appointed by the governor, June 3rd, are: Dr. Henry Barnes, Cleveland; Dr. L. L. Barber, Toledo; Dr. H. C. Brown, Columbus; Dr. J. K. Douglas, Sandusky, and Dr. Stanley Smith, Cincinnati.

In the selection of the men so well qualified for the duties imposed on this important board, Governor Nash has shown his good judgment, and demonstrated that he has had the interests of the profession in mind, and considered fitness for the position above political influence. He will certainly receive approbation from the dental profession throughout the state and the dentists will have no cause for uneasiness as to the thoroughness of the work of this board.

CANADIAN DENTAL COUNCIL AND DENTAL ASSOCIATION.

The Canadian dentists are now looking forward to the formation of a Canadian Dental Association, and will meet at Montreal on September 15-17, 1902, to effect an organization.

At this meeting steps will also be taken toward the formation of a Canadian Dental Council, "whose powers," states the editor of the *Dominion Journal*, "shall be in the direction of those set forth by the medical profession." There is "now a bill before the Dominion Parliament providing for the formation of a Canadian Medical Council, whose powers shall be to examine candidates, and give the successful ones licenses to practice medicine in any part of Canada; and by an arrangement with the British Medical Association, this license will also carry with it the right to practice in any part of the British Empire."

We hope our Canadian brothers will be successful in this worthy undertaking, and if so it will mark a step in advance for our good neighbors.

SCHEMING DENTISTS.

It seems that the United States is not the only country that has its scheming dentists. The American Plateless Teeth Company, located in London, England, have been sending circulars throughout England, inviting the public to deposit with them money in amounts equal to $100.00 or multiples of $100.00, on which the company agrees to pay 15 per cent interest. According to the *Financial News,* one F. Sinclair Kennedy is general manager and secretary.

"It is not necessary," states the circular, "to dilate on the vast profits made in the dentists' profession. But take, as example, our Piccadilly practice. It would cost about £500 to fix up and completely furnish similar premises as branches. The takings here for one week, as our books will show, £15 6s.—(we have taken as much as £23 8s. 4d.)—the expenses average about £6 per week, leaving £9 per week, or £468 per annum, profit on each £500 invested. With further capital for advertising, etc., the takings can be trebled. From these data we feel confident you will have no hesitation in observing that we are quite within the mark in offering a dividend of 15 per cent. per annum."

Enclosed with this circular is a large and imposing "certificate," containing an agreement by the company to pay 15 per cent. on any amount deposited, subject to a month's notice of withdrawal on either side.

And they state further that "if sufficient money is forthcoming, the Plateless Company will extend its business to Edinburgh, Glasgow, and many other places."

Such a scheme will undoubtedly give the dentists concerned a good working capital and easily enable them to "extend their business," but what of the gullible public who intrust their hard-earned money in such hands?

SOCIETY

COLLEGE COMMENCEMENTS.

PITTSBURG DENTAL COLLEGE.

The sixth annual commencement exercises of this college were held April 30, 1902. The following is a roll of the senior class:

A. J. Artman, M. W. Blackburn, J. C. Boner, L. W. Broomfield, F. C. Buterbaugh, M. E. Churchill, W. B. Conway, S. M. Crawford, T. A. Deeds, S. H. Douthett, C. H. Ellis, F. A. Findlay, S. Warren Frank, M. J. Freshwater, M. Ross Gibson, D. G. Giles, Harry E. Grant, Clarence S. Guckert, R. E. Hayes, Herbert Hess, Asa W. Heyl, J. H. Hysong, Leo H. Jackson, George A. Jelley, Edward Duff King, D. L. King, W. O. Linhart, Louis G. Maier, Frank R. Masters, B. T. Mohney, James H. Moore, Victor H. McAlpin, H. A. McCandless, A. W. McCullough, J. R. Nelson, Jesse Pennington, James B. Phillips, John R. Proven, Albert Reichenbach, George S. Robison, F. C. Robinson, Robert C. Roy, George F. Shade, James M. Sugden, Sue L. Taggart, Walter C. Thompson, J. W. Walker, W. P. Wiegering, Frank H. Wilson, D. H. Warren, J. B. Wells, J. Burt Kirk.

CHICAGO COLLEGE OF DENTAL SURGERY.

The twentieth annual commencement exercises of this college were held at the Illinois Theater, Tuesday, April 29, 1902. List of graduates: R. Arnold, R. L. Ankeny, F. C. Aubrey, D. W. Adams, F. W. Alexander, I. J. H. Atkinson, P.

H. Atwood, L. G. Albright, H. W. Baker, W. H. W. Ball, W. R. Brooks, C. W. Bandy, W. Bogie, W. E. Blair, T. Budge, F. E. Blanchard, P. A. Betty, R. W. Bingham, G. E. Bailey, E. Cutrera, M. E. Corley, J. Cannane, G. R. Churchill, R. O. Crouch, C. D. Coilar, C. O. Campbell, P. Clarke, R. F. Campbell, E. N. Collins, C. A. Cook, W. D. Carroll, J. S. Conley, R. P. Culver, R. E. Cockrell, L. W. Cook, P. C. Curran, C. C. Clemens, C. F. Clark, C. M. Cahill, F. G. Conklin, F. E. Corliss, W. H. Carl, C. J. Christopher, F. D. Campbell, J. A. Craver, G. F. Corley, G. H. Coram, J. J. Cooper, L. G. De Armand, H. P. Dorsey, Melle deBoer, Jelle deWaard, C. R. Dutcher, J. M. Donahoe, C. A. Davis, F. A. Dean, J. W. Doran, J. D. Donahoe, A. N. Davis, H. G. Dressel, H. S. Donaldson, R. O. Dickson, R. A. Day, A. J. Evans, D. W. Evans, A. Edwards, L. L. Eells, W. F. Ferstenberg, A. Fee, F. W. Groffman, W. S. Goldsmith, O. A. Goetz, C. B. Girard, A. W. L. Gilpin, P. H. Geiger, L. E. Golding, W. L. Gregg, A. Grette, R. L. Graber, W. L. Gillette, J. H. Greenfield, W. P. Gasser, W. H. Hixon, W. M. Haller, J. F. Holland, G. J. Henneman, H. C. Hamilton, M. V. Havel, M. H. Holbrook, M. T. Huber, J. L. Helmer, M. O. Hunter, P. C. Howland, W. A. Herrmann, P. A. Helmer, A. Hanson, T. J. Holmes, W. R. Hurd, V. Hitz, B. P. Hallam, J. T. Isaachsen, R. Jasmann, E. Jacobs, J. B. Johnstone, C. S. Jones, A. M. Kile, J. W. Kelly, R. E. Kanouse, C. F. Kenward, R. J. Lamme, S. E. Linsley, E. E. Loftus, M. F. McRae, J. V. McKee, J. M. McEvoy, J. E. McLaughlin, P. Moe, G. P. Morris, H. G. Morgan, L. C. Milliken, T. M. Mott, C. A. Maher, W. D. N. Moore, W. A. Millyard, W. J. C. Morton, R. S. Moye, R. C. Mathis, S. S. McMillan, C. A. Marshall, F. G. Myers, J. J. Maloney, J. A. Niles, V. S. Nevius, J. P. Norton, J. F. Nelson, L. A. Neil, C. A. Nixon, R. B. Orr, J. G. Ohlwein, W. E. O'Keefe, T. M. O'Connor, F. C. Perl, A. E. Phillips, R. Purdum, E. G. Peterson, L. E. Pitcher, E. Perl, T. A. Penhallegon, H. B. Pierick, P. G. Puterbaugh, H. Popplewell, F. J. Quinn, C. E. Rector, O. J. Raffety, F. E. Raiche, L. E. Rubert, J. W. Roper, E. L. Read, F. J. Ryder, W. D. Rockwell, B. J. Reck, A. P. Rutherford, O. L. Rea, A. J. Schrumpf, C. W. Sowles, W. F. Schmeckebier, A. F. Schaefer, J. L. Summers, F. W. Sutton, H. O. Scott, G. E. Stevenson, G. W. Spears, J. L. Scott, P. H. Sheridan, A. R. Speer, C. H. Stone, W. M. Shaw, N. B. Smith, C. O. Simpson, C. F. Schultz, G. S. Soseman, R. L. Skinner, J. A. Steele, S. N. Stevens, O. B. Smith, H. S. Sherman, J. H. Tuttle, C. C. Turner, J. A. Townsend, S. C. Thrift, R. B. Ticknor, A. M. Tummell, J. A. Vasumpaur, A. Vold, W. J. F. Wilkie, H. M. Wettengel, A. B. Walker, E. F. Wagner, F. S. Waite, F. M. Wells, O. E. Worthington, D. P. Wheeler, A. C. Wherry, G. D. Wilcoxon, E. R. Zanglein, F. Zbornik.

OHIO COLLEGE OF DENTAL SURGERY.

Commencement held May 8, 1902. Graduates were as follows:

R. M. Andrus, G. R. Apfelbaum, W. J. Arink, W. B. Armstrong, F. S. Ball, J. R. Barg, M. E. Beinhart, A. F. Beneke, G. S. Brooks, R. M. Brooks, A. F. Brunow, G. E. Bryson, W. L. Bumgardner, R. E. Burbank, F. Burger, F. V. Butcher, B. E. Canfield, C. D. Carley, H. E. Caswell, C. A. Chambers, E. G. Cole, H. R. Collier, A. F. Constien, W. T. Davis, W. C. DeHart, J. B. Dill, E. J. Driehs, E. J. Early, J. C. Elder, W. W. Ewing, Miss A. Feuerstein, L. C. Flack, F. C. Foster, J. F. Givan, J. B. Glenn, Miss N. Goodwin, J. D. Gordon, H. W. Grant, J. G. Hall, G. W. Harness, V. E. Hayne, J. T. Hedges, A. M. Helm, J. E. Herman, W. S. Herndon, G. A. Hickman, R. L. Huey, H. M. Jordan, E. H. Kahn, P. N. Kestner, R. H. Langdale, T. R. Levan, J. M. Logan, C. Longenecker, J. C. Longfellow, C. F. Ludy, H. R. McAnally, G. B. McClintock, J. R. Markel, D. M. Mason, H. B. Mathiot, W. Matthews, Miss M. D. Meek, R. S. Millman, H. C. Parrott, R. E. Petty, E. M. Poole, C. A. Pride, M. E. Reardon, W. J. Richmond, R. L. Rigdon, H. H. Schmidt, E. M. Scott, C. W. Smith, R. D. Smith, D. G. Stafford, E. G. Stamper, E. W. Stratemeyer, L. G. Straus, E. W. Swinehart, Chas. Swope, T. R. Urmston, R. J. Ward, L. C. Weimer, R. K. Wood, A. H. Woodward, E. M. Woolgar, C. L. Yoders, R. C. Young, W. A. Zeter.

MEDICO-CHIRURGICAL COLLEGE.

Medico-Chirurgical College, Philadelphia, held commencement May 24. The graduates were as follows:

C. C. Bristow, H. T. Birkinshaw, J. K. Brallier, B. F. Campbell, H. B. Cupitt, C. E. Dull, D. Epstein, M. D., J. C. Field, E. E. Henry, E. C. Halliday, J. D. Husted, M. W. Hayes, W. Hayday, E. Lloyd, W. W. Lutz, B. G. Love, J. F. Langlois, P. A. McAneny, E. J. Mead, A. J. Muchnic, D. M. Powers, J. J. Russel, J. J. Ryle, J. F. Sanderson, I. Sharpe, S. S. Smith, W. B. Stewart, A. C. Tollinger, W. H. Stover, L. J. Van Derpool, C. J. Weisenburn, J. L. Zimmerman.

LOUISVILLE COLLEGE OF DENTISTRY.

Commencement held May 8. Graduates as follows:

L. B. McLain, H. Richardson, J. W. Blackburn, A. M. Ericson, S. E. May, R. E. Grant, J. C. Calhoon, I. W. Beauchamp, T. H. Ragatz, J. Alexander, J. Sayle, W. T. Beard, G. E. Mathews, G. T. Smith, C. L Gabbert, J. T. McIntire, J. C. Beck, B. B. Knolle, W. F. Collings, R. P. Spurlin, W. M. Stringer, T. F. Bates, W. A. Youngberg, C. D. Watkins, G. E. Watkins, G. C. Smith, W. A. Kerley, S. L. Barron, D. C. Blackburn, H. H. Smith, G. H. Kincaid, A. D. Graham, H. H. Mitchell, E. J. Anderson, A. S. Reese, G. N. Harris, C. M. Butler, T. G. Martin, G. N. Wyman, B. H. Cecil, F. H. Gordon, H. A. Hampton, E. C. Hawkins, A. F. Welcher, A. B. Russ, J. T. Shapinsky, B. W. Sidebottom, A. Meder, H. G. Mount, J. L. Brock, E. M. Crutchfield, F. E. Smith, O. E. Granger, T. M. Williams, C. S. Grady, C. W. Dorsey, W. H. Dear, C. E. Hoffman, B. M. Stainbrook, W. H. Felder, R. J. Washington, D. W. Seale, J. D. Mitchell, R. Reed, T. M. Nicholson, J. D. Meade, W. W. Whitehead, H. E. Seale, H. H. McCullough, T. L. Dailey.

CINCINNATI COLLEGE OF DENTAL SURGERY.

Commencement of the Cincinnati College of Dental Surgery was held on May 9, 1902.

The degree of D.D.S. was conferred on the following graduates:

L. L. Anshutz, J. E. Chadwick, G. C. Faris, J. A. Henry, T. N. Heywood, P. Hill, H. B. Holden, H. A. Maffey, E. L. Tischbein, H. O. Valentiner.

WESTERN RESERVE UNIVERSITY DENTAL DEPARTMENT.

The Commencement exercises of the Western Reserve University were held in Beckwith Memorial Church, June 12th, 1902.

Professor Louis H. Jones of Cleveland, delivered the principal address.

President Charles F. Thwing conferred the degree of Doctor of Dental Surgery upon the following persons:

William Roy Brewster, George Lynn Carbon, Elmer Elsworth Chambers, Joseph Anson Coates, Ralph Edmund Davis, Lee Lamont De Arment, Alfred Lawrence Duff, John Wilson Fairbanks, William B. Graff, M. D., Herman Douglas Graham, Charles Brigham Hawn, George Hugh Irwin, Richard Kitzsteiner, Ralph Nosker Leonard, Walter Mitchell Leonard, Clinton Edward Line, James Calvin McConkey, John McKerrall, James Scott McLean, Lyman Allen Messecar, Albert William Nicholson, Thomas Guy Patterson, Albert C. Plant, Otto Henry Reisser, Herman B. Rosenwasser, Ralph Edward Sadler, Ira Maphis Saum, William Otto Spieth, Oscar Frederick Strong, Howard Oclydes Wearstler, Archie Leon Wood.

ILLINOIS STATE DENTAL SOCIETY.

At the annual meeting of this Society, held at Springfield, May 13-15, 1902, the following officers were elected for the ensuing year:

President, A. H. Peck, Chicago; Vice-President, Dr. Holland, Jerseyville; Secretary, Hart J. Goslee, Chicago; Treasurer, C. N. Johnson, Chicago; Librarian, J. T. Cummins, Metropolis; Committee on Science and Literature,

G. V. Black, Chicago; Committee on Art and Invention, L. S. Tenney, Chicago; Board of Examiners, C. B. Sawyers, Jacksonville; Committee on Ethics, E. A. Royce, Chicago, G. E. Warren, Pontiac, E. F. Hazell, Springfield; Supervisor of Clinics, C. P. Pruyn, Chicago; Executive Committee, Chas. J. Sowle, Rockford; Members of Executive Council, E. K. Blair, Waverly, D. M. Gallie, Chicago, O. M. Damude, Monmouth; Publication Committee, Hart J. Goslee, Chairman, D. M. Cattell, G. W. Dittmar, Chicago. Local Committee of Arrangements, E. F. McIntosh, J. B. Brown, G. D. Sitherwood, all of Bloomington, which city was selected as the next place of meeting.

NATIONAL DENTAL ASSOCIATION.

The sixth annual session will be held in Niagara Falls, N. Y., July 28th to 31st.

A good program is being prepared and a large and profitable meeting is anticipated.

A rate of one fare and a third for the round trip, on the certificate plan, has been secured on all roads in the United States and part of Canada.

In purchasing ticket going, full fare must be paid and a railroad *certificate* taken; this, when properly signed, entitles holder to return for one-third fare.

Tickets may be bought going from July 22d to 29th. The certificates for return journey may be used as late as August 4th.

A. H. Peck, *Recording Secretary.*
Chicago.

MISSOURI STATE DENTAL ASSOCIATION.

At the last annual meeting of this association, held at Jefferson City, May 21, 22, 23, 1902, the following officers and committees were elected:

President, S. C. A. Rubey, Clinton; first vice-president, J. H. Kennerly, St. Louis; second vice-president, F. W. Franklin, Kansas City; corresponding secretary, Otto J. Fruth, St. Louis; recording secretary, H. H. Sullivan, Kansas City; treasurer, J. T. Fry, Moberly.

Next meeting at Kansas City, May, 1903.

THE VIRGINIA STATE DENTAL ASSOCIATION.

This society will meet at the Hygeia Hotel, Old Point Comfort, Va., Aug. 5th, 6th and 7th, 1902. Visiting dentists will receive a cordial welcome.

Very truly yours,

J. Hall Moore.

OHIO STATE BOARD OF DENTAL EXAMINERS.

The new board met for organization at Cleveland June 9th. Officers elected:

President—Dr. Henry Barnes, Cleveland.

Treasurer—Dr. L. L. Barber, Toledo.

Secretary—Dr. H. C. Brown, Columbus.

Other members: Dr. J. K. Douglas, Sandusky, and Dr. Stanley Smith, Cincinnati.

Communications should be addressed to Dr. H. C. Brown, 112 E. Broad St., Columbus, Ohio.

NORTHERN OHIO DENTAL SOCIETY.

At the meeting held June 9-11, the following officers were elected for the ensuing year:

Dr. J. F. Stephen, Cleveland, president; Dr. W. H. Fowler, Painesville, vice-president; Dr. W. T. Jackman, Cleveland, and Dr. C. D. Peck, Sandusky, secretaries; Dr. D. A. Allen, Toledo, treasurer.

AFTERMATH

PERSONAL AND MISCELLANY.

Ancient Remains.—Workmen who have been engaged in excavating foundations for some new shops in Silver street, Gainsborough, have found nearly the whole of nine skeletons. They were found lying in a position as though buried in a trench. The supposition is that the place was in early days the site of a military burial ground. Competent authorities are of opinion that some of the men must have been nearly 7 ft. high. The teeth in the skulls of what were fully-developed men show that dentists were not needed in early times. In some of the largest of the skulls not a tooth is missing, and all are white, even, and sound.—*London Record*.

Relation Between Physical and Mental Work.—Beyer shows (*Journal, Boston Society of the Medical Sciences*), as the result of an examination of a large number of children, that a definite relation exists between the capacity for mental work and the height, weight, and circumference of the thorax; that is, superiority in the three points mentioned is usually accompanied by superior capability for mental work. It is thus clearly established that physical training is valuable as a means of increasing the mental capacity.

Sleep After Administration of Nitrous Oxide and Oxygen.—At a recent meeting of the Society of Anaesthetists, Mr. Willett brought forward a case in which a patient having had gas and oxygen for a few minutes, remained practically asleep for four days. In answer to Dr. Harold Low, Mr. Willett said that he did not think the patient was malingering. The president said that this case reminded him of a case in which gas and oxygen had been administered to a woman for eight minutes, the administration being followed by a prolonged faint. Mr. H. J. Paterson gave notes of a case in which gas and oxygen had been given for 135 minutes for an operation for varicose veins, the subsequent recovery from the anesthetic being rapid and complete.—*Record.*

BIG SEIZURE OF FALSE TEETH.—On April 2d, at Montreal, Canada, the secret service department of the Dominion customs made a seizure of from $10,000 to $15,000 worth of false teeth, which had from time to time been consigned from New York to a well-known dental manufacturing firm in that city, and through an alleged conspiracy were passed through the customs house free.

GOOD FORTUNE THRUST UPON HIM.—Dr. Henry Barnes, Cleveland, O., was operated on successfully for appendicitis, appointed on the State Examining Board, and elected its president, and became a grandfather all within one month. Henry always was looked upon as a hustler.

A PAPA NOW.—Dr. Varney Barnes, Cleveland, is receiving congratulations on the advent of a daughter, June 2d, 1902. He declares it the "finest ever" and his judgment is considered good.

THE DENTAL SUMMARY

VOL. XXII AUGUST, 1902 NO. 8

CONTRIBUTIONS.

THREE PRACTICAL SUGGESTIONS.

BY C. A. HAWLEY, D.D.S., COLUMBUS, OHIO.

SEPARATING THE TEETH.

Much has been written of late about the desirability of separating the teeth before filling and restoring the interproximal space. No operation involving the proximal surfaces of the teeth is perfect unless this is done. Many methods of obtaining separation have been suggested, and several materials used. There is one to which I wish to call attention that has not received the attention that its good qualities deserve. This material is Sea Tangle.

Sea Tangle can be obtained from the druggists in the form of a cylindrical tent, about three inches long and one-fourth or three-eighths of an inch in diameter, with a hole through the middle. Fig. I.

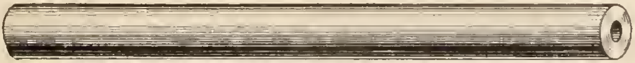


Fig. 1.

It is used in medical practice and is the dried and compressed fibre of the seaweed. When moistened it expands about three times its original size in the opposite direction of the fibre.

Place the tent in a vise, and with a laboratory saw cut off a section about one-eighth of an inch long. With a sharp knife, or pair of wedge cutters, cut this up into rectangular blocks of various sizes. Fig. 2.

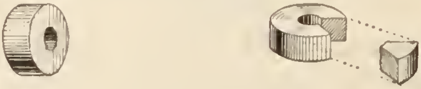


Fig. 2.

Clean out the loose decay in the cavity in a tooth where separation is needed, and fit in one of the blocks of Sea Tangle, selecting one of a size that will just pass in and retain its place. Fig. 3.

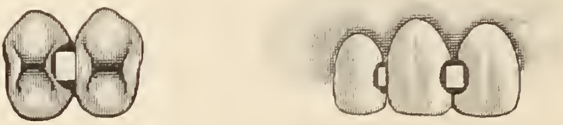


Fig. 3.

In the incisors the lingual wall of the cavity will generally help retain the block in place. In the bicuspids and molars it should rest on the gingival wall. With a little experience the size of the block can be selected so that sufficient space can be gained from one application. It will take about two days. Then the material can be taken out and temporary stopping be placed in the cavity to await your convenience in filling. Or it can be left in the cavity a week or more without inconvenience or harm, as it does not become foul like cotton. If the cavity is so large that a piece of Sea Tangle that fills it would press too hard and cause much pain, part of the cavity can be filled with gutta-percha or cement, and a smaller block used. After a little experience very little pain or soreness will follow its use, and very much time will be saved.

ARTICULATING SURFACE FOR A BRIDGE.

In making the occluding surface of a bridge for molars and bicuspids, the following method will be found useful in many cases: After the abutment pieces are made, the impression taken and the models mounted on an articulator, back up the facings and arrange them on the model. Build up the occluding surface with soft wax, and press the occluding teeth on the opposite model down into it. Trim the wax and carve it into just the form you want, moving the occluding teeth laterally in the soft wax to allow for the lateral motion of the jaw. Now take platinum-and-gold-foil, No. 60, such as is used for filling teeth, and cut a piece that will cover the surface of the wax nicely, lapping over on the abutment pieces a little, so that the investment will hold it in place. Burnish it down smoothly over even surface of the wax. It will stick to the wax and burnish easily. Then warm the wax slightly and again press the teeth together. You will now have an occluding surface of gold and platinum foil. Fig. 4.

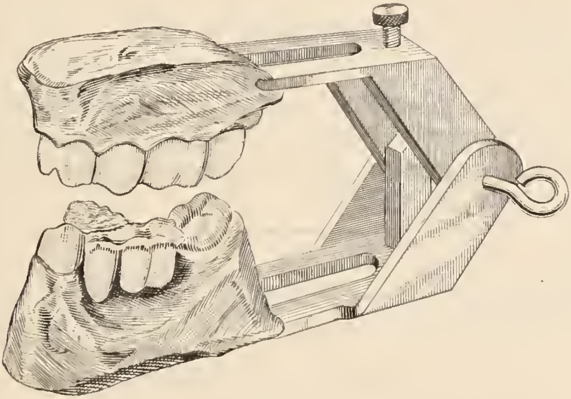
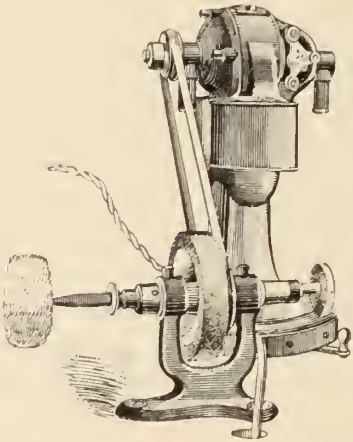


Fig. 4.

The foil should be trimmed and fitted accurately to the gold backing where it comes out to the tip of the porcelain. Invest, remove the wax, and solder, flowing the solder over the foil. The platinum in the foil makes it safe to flow solder upon, and a very close and accurate articulation can thus be secured. In polishing, the foil is mostly cut away, leaving the hard solder surface for mastication.

AN ELECTRIC LATHE FROM A FAN MOTOR



This engraving shows the motor of a 16-inch fan attached to a lathe head. It is only necessary to take off the fan and guard, and slip on a grooved pulley, which can be made at any machine shop. The combination makes a very satisfactory electric lathe at a small cost. The speed can be governed by changing the relative size of the pulleys. A much slower speed can be obtained than with the regular laboratory lathe, and in this case the outfit has been very satisfactory.

A FEW WORDS ABOUT PACKING AMALGAM IN CAVITIES IN THE PROXIMAL SURFACE.

BY E. K. WEDELSTAEDT, ST. PAUL, MINN.

THE DENTAL SUMMARY for May, 1902, contains a short essay on packing amalgam in cavities in the buccal surface. In considering the subject I called attention to the necessity of using much care in packing amalgam. Reasons were given why the burnisher should not be used, and something was said about using amalgam pluggers of different sizes. Reference was also made to the results of some experiments on which I based the ideas advanced in that essay. In considering this matter of packing amalgam in cavities in the proximal surface, I ask that the reader familiarize himself with the ideas contained in the first essay written, so that he can better understand the views expressed in this.

Let me consider the last operation I made with amalgam in the proximal surface. The cavity was in the disto-occlusal surface of a lower right first molar. The teeth and gums were prepared for the reception of the rubber dam, which was then adjusted. The crowns of the second and first molars, as well as those of the second and first bicuspids, were exposed when the dam was adjusted. The cavity involved fully two-thirds of the proximal surface.

The cavity was so prepared that the filling would be seated on a flat gingival seat. The cavo-enamel margin was at right angles to the axial wall. Lateral or parallel grooves or undercuts were entirely avoided. Anchorage for the filling was obtained by cutting a flat seat or step on the occlusal surface, and giving it the shape of a dove-tail.

When the cavity was finally prepared a matrix was made from a piece of copper, one-fiftieth of a millimeter thick. This was fitted around the tooth, so that it extended from the buccal groove to the lingual groove. A Wedelstaedt tie secured it. The amalgam pluggers were then fitted to the cavity. The alloy was mixed and kneaded, and then packed into the cavity. Four pieces of amalgam were used to fill the cavity. After the cavity had been filled the amalgam was left absolutely alone for about three minutes. It was examined and found to be very hard.

The ligature holding the matrix was then cut and removed, and the wings of the matrix turned back toward the second molar, thus exposing the amalgam at the distal angles. With a sharp knife the amalgam was trimmed, from the main body of the filling toward the cavo-enamel margin. The matrix was then grasped and forcibly withdrawn. The trimming was continued until the filling was of the desired form. The point of contact with the adjacent tooth was not disturbed. The trimming was at all times away from it. When the trimming with the knife was finished a "medium" strip was passed through the inter-proximal space, to the gingival of the contact, to remove any sharp edges that had been overlooked. This completed the trimming of the proximal surface.

The occlusal surface was cut to form with a pair of sharp rapid excavators, three millimeters in diameter.

The rubber dam was then removed, correction of the occlusion made, and the patient dismissed.

At the next sitting the filling will be polished.

Why was it that parallel grooves were not cut? Why was the contact not disturbed while trimming the filling?

In answer to the first question, let me say, that parallel grooves are at all times a menace to the strength of the tooth, and, more often than not, lead directly to the loss of the filling. We cannot pack filling material into grooves or undercuts as we can against a flat surface. During the past six or seven years, I have on several occasions been compelled to remove a quick-setting amalgam filling which I had made in some proximal surface. Where small convenience pits had been made in the bucco and linguo-gingivo-axial angles, I found that these, trifling as they were, were more than sufficient for every purpose. Many of the quick-setting amalgams become very hard, and when much stress is placed on the filling there is a chance for fracturing the tooth where it has been weakened by making large and deep undercuts. Very often enamel cracks and black surfaces are observed beside these weak places. In view of these facts and the further one. that undercuts do not serve to add stability to a filling, and tend only to weaken the tooth, they may as well be done away with when occlusal anchorages are made.

The point of contact was not disturbed in trimming the amalgam, for the reason that in polishing the amalgam the filling is always shortened a little mesio-distally. I prefer to do this at the time the filling is polished, and then I have some definite idea of the size of the filling. By reducing the size of the filling, mesio-distally, at the point of contact, when trimming the amalgam and then making a second reduction when polishing the filling, the exact contour desired is not always obtained. Therefore, I feel that it is better to let the point of contact alone till the filling is finally polished.

There are a number of things to be said on the subject of making amalgam fillings. But these can only be touched upon, for it is impossible to go into any great detail.

The great majority of dentists seem to be of the opinion (I am judging from the operations I see) that amalgam fillings "are cheap things anyway; so I just squash them in." This, at least, is how one man expressed it. This is a grave mistake and if followed is apt to lead to all kinds of trouble. It is far more difficult to make first-class amalgam fillings than it is to make first-class gold fillings. Many others seem to think that amalgam fillings need not have any special cavity preparation, need not be trimmed, or polished; that amalgam placed in the proximal surfaces need not or cannot be contoured. Another class of dentists have been taught that as decay cannot take place in the margins around fillings made of amalgam, principles of extension for prevention can be ignored. A larger class still have been told that amalgam fillings made on decalcified dentine cause a recalcification of the decalcified mass.

When our knowledge was limited and our theories were based on suppositions, it was perhaps all very well to have sophistry of this kind brought to our notice. But with the development of our knowledge, we know definitely that such things are wrong. It is our duty to become familiar with all the knowledge as it is developed for our consideration and not follow along a beaten path, the end of which no man knows.

Recently a number of essays have appeared in which the writers allege that they are fully acquainted with the methods of extension for prevention, but they assert that they do not follow them, for their patients cannot afford to pay for the operations. This is very peculiar reasoning. I should like to ask those who have had the courage to incorporate such thoughts in their essays and follow such methods in their daily operations, how they would like similar treatment from a surgeon? If a thing is worth doing it is worth doing well. If you cannot do the teeth on which you operate some little good, do not be guilty of doing them harm.

In closing, let me say that before me lies an open dental journal, from which I copy the following: "Where decay is rapid in growing mouths, or, for that matter, at any period in life, gold as a filling material is contra indicated. It is better and safer practice to resort to either guta-percha or amalgam to tide over these years." (The journal in question is dated May, 1902.) A very long essay can be written regarding what has been copied, but I have neither the time nor this journal the space to spare to say what is requisite and necessary.

Amalgam, as a filling material, has its place and use. It does not nor can it ever take the place of gold. The use of the two materials is separate and distinct, and their use should not be confused. Where there is evidence of rapid decay going on, gold is the filling material which should be used, for the simple reason that we all know what we can do with it. No man knows what can be done with amalgam. Many think that they know, but few really know.

Regarding the usefulness of gutta-percha, I can only say that is also has its place, and this place is not where gold or amalgam should be used.

In the selection of a material for filling cavities in the human teeth, judgment is as necessary as it is that some study of conditions is at all times necessary prior to preparing cavities. If this is not given the case, the operation might just as well not be made, for in too many cases it is a temporary expedient only, which, more often than not, is quickly followed by something permanent from the hands of a more intelligent dental surgeon.

* * *

A METHOD OF INSERTING ARTIFICIAL CROWNS.*

BY J. R. OWENS, D.D.S., CLEVELAND, OHIO.

My only apology for again presenting this method of crowning teeth after a bench demonstration of the same at Columbus at the meeting of the State society, several years ago, and a clinical demonstration before this body a year ago, is the promise I made to numerous inquiries as to whether the method of my demonstration would be published, that it should be sometime.

In a prepared paper it is possible to elaborate upon the various modifications possible to meet necessary exigencies in crowning teeth, which it is not practicable to accomplish at a clinic.

I believe it will be conceded that in crowning teeth, the greatest weakness is the permanent union between the crown and root. The dowel uniting them withdrawing from the root, or because of reaming out the root to receive the dowel or post, the root splits when brought under too great a strain, thus destroying the crown's foundation. The method I have adopted and wish to present to you, reduces to a minimum these defects. It is composed of parts of two systems that are known to you, namely, the How and Davis; the How post and the Davis crown being employed.

I take it for granted that we are all agreed that in placing a crown upon the anterior teeth it should be one that imitates nature as near as possible, and that it is no place for a gold crown.

The gold crown is of great utility on the roots of broken-down molars, where the display of gold is not conspicuous, but to disfigure the face so that every time a person opens his mouth a glaring mass of gold becomes the most conspicuous object is not a thing that should make us proud of our profession.

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*Read at Northern Ohio Dental Society, June, 1902.

Having agreed that the porcelain crown is the proper thing for the front teeth, or at least a porcelain faced crown, let us consider which is the stronger, a solid porcelain crown or a built-up crown having a porcelain face with backing of gold or other metal, or lower fusing porcelain body. The porcelain crown is one homogeneous mass, and surely stronger than a thin veneer of the same. The weakness of a porcelain faced crown is the danger of the porcelain face breaking. This fact is reduced if the built-up portion is a lower fusing porcelain body, but my observation leads me to believe that it is not so strong as a solid crown of high fusing porcelain. Then as to appearance the solid crown of porcelain so closely imitates nature as to be entirely satisfactory. Last but not least it is the most sanitary crown made. For these reasons I have chosen the solid porcelain crown.

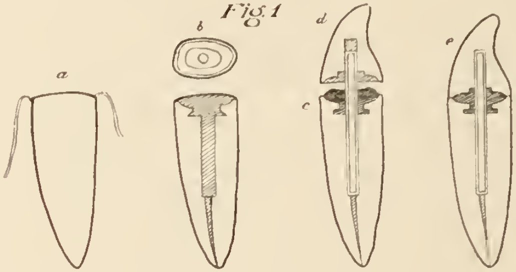
I have stated that the greatest weakness of crowning teeth is the permanent union of root and crown. This being due to weakness of adhesion of dowel or post in the root or splitting of the root when under too great strain. My method reduces to a minimum these defects. Using the How post obliges cutting away only enough of the tooth structure to admit of screwing the post home, and the tapping of the socket with the coarse thread used in that system makes it possible to retain a dowel or post with the least likelihood of its withdrawing by strain, of any method I can conceive of, while the strength of the root is virtually unimpaired, as the portion drilled out is not much more than the space of the pulp canal.

If there is to be weakness anywhere it is better to have it between the dowel and crown, rather than between dowel and root. Every time the dowel or post has to be reset in the root means a weakening of the root, because each time more of the structure of the root has to be removed, owing to disintegration. So the nearer that connection can be made forever the better, and no pains should be spared in endeavors to do so. Then with the Davis crown it is a very simple matter to place another crown on the root in case a crown is broken. But with my varied experience only one or two crowns have broken, while I am sorry to say I cannot make so good a report in regard to the everlasting union of post and root. But I know of nothing better, and by experience have been able to reduce these failures.

Another desirable feature of this system is its adaptability. The crown may be fitted to the root more accurately if not encumbered with a fixed post or dowel. If the root needs reinforcing with a ferrule it can be set independently of the crown. This ferrule may be a simple band or strengthened still more by soldering a plate of metal over one end, perforating the same to slip over the post. In fractured teeth, very often, the break extends a considerable distance underneath the gum. These ferrules can be fitted to fill out the original contour of the root, then cemented to place, thus forming a good foundation for the crown. But where the root is strong, not weakened by decay, it is preferable not to have a band or ferrule. Even with the greatest care to have the band fit accurately about the root of the tooth, it has generally been found when the root was extracted that the adaptation has been poor, and thus the edge of the projecting band becomes an irritant to the gum or gingival margin. For this reason I do not believe in banding the root unless it is necessary to do so to strengthen it, or restore a wall of the root that is missing, either from decay or fracture, and some bicuspids with two well-defined roots such as I shall show later.

From general statements I will now go to particulars.

The root of the tooth to be crowned should be aseptic and healthy as possible. The apex of the pulp canal then sealed with oxychloride of zinc. The reason I prefer cement to chloropercha is because there is no shrinkage and the cement thoroughly stops the entrance of moisture to the canal. This is quite necessary from several standpoints. It prevents the disintegration of the dentine, thus enabling the How post to remain firm in the root; also preventing pericemental trouble, due to decomposition in the root. For these reasons oxychloride of zinc makes the best root filling generally, and oxychloride of zinc in preference to oxyphosphate of zinc, because the oxychloride of zinc mummifies all animal matter in the dentinal tubuli and makes a thoroughly aseptic filling. The phosphoric acid has no such desirable qualities. Decay is more liable to continue under an oxyphosphate filling than under an oxychloride filling.



(a) Superior cuspid root cut off for crown. *(b)* Sectional view of root after preparation for How post and amalgam filling. *(c)* Sectional view after insertion of How post and amalgam filling with crown *(d)* ready for setting with oxyphosphate cement. *(e)* Section showing crown when set.

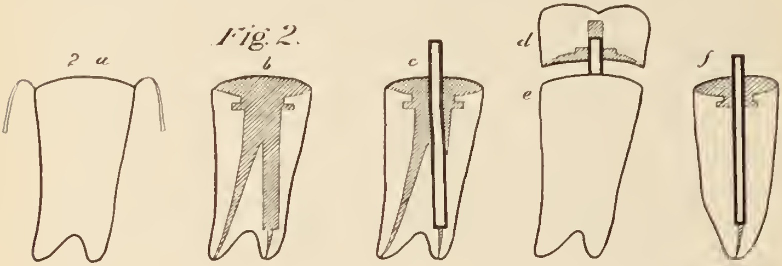
We will now take a simple case for crowning. A superior cuspid root, such as is represented in diagram No. 1. The end of the root is trimmed to a flat, slightly cylindrical surface, the convex curve extending from front to rear, as seen in drawing *a* and about a sixteenth of an inch beneath the gum margin. I have found a square rattail file, proper carborundum points, and sharp chisel the best instruments to accomplish the shaping of the end of the root. With a large bur dish out the end of the root, leaving only the slightest flat surface possible at the edge. With an inverted cone commence in the root canal and cut a cavity of sufficient depth to permit an undercut, and extending it towards the periphery as far as you dare without unduly weakening the walls of the root. With a wheel bur make the undercut. The purpose of this treatment of the end of the root is to make a cavity that will retain an amalgam filling and thus seal the end of the root from decay. The next step is to clean the pulp canal. Measure the length of the canal and have the length indicated on the broaches used in dressing the canal and filling it. To insure the thorough sealing of the apical foramen, my method is, after the canal is thoroughly sterilized and dried out, to take a roughened Donaldson broach with the length of the canal indicated upon it by a metal slide, in order that I may not go beyond the end of the canal; twist the slightest shred of cotton on the end of the broach, keep the root dry by use of napkin, etc., mix Houghton's os-artificial to a thick creamy consistency and incorporate as much of it as possible in the cotton on the broach, and quickly carry it to the apex of the pulp canal. Untwist the cotton by rotating the broach and gently tamp it home, using care not to press it beyond the end of the canal. I have the drill and screw tap at hand, and immediately after filling the pulp canal drill the hole for the How post, because it is easier to drill through the surplus cement when soft than after it is hard, and the drill follows the canal better. The hole should be extended as far as you can safely drill into the root without breaking through its walls, and screw tapped its entire length. While this work is going on the cement is setting; after this work is completed protect the cement from the moisture by filling the canal with some temporary stopping.

We now turn to fitting the crown.

In selecting a crowh the color and size must be carefully considered. If the exact shade of color cannot be obtained it is better to get a darker rather than a lighter shade. In selecting a cuspid it should be several shades yellower than the incisor teeth. The size in diameter should be sufficient to cover the root entirely. Rather too large than too small, because if too large and it projects beyond the root, it is a simple matter to grind the excess off. Special care should be given to the joint upon the labial margin, because if the gum recedes and there is a poor joint, it becomes unpleasantly conspicuous. The articulation should be carefully cared for; however, if it strikes slightly after the crown is set, it is a simple matter to alter the articulation with a carborundum point. Having fitted the crown, we are now ready to apply the rubber dam. The gum about the root is treated with orthoform to decrease the pain attending the application of the clamp and rubber. The clamps I use for crowning purposes are of my own design. The loop is larger than in the usual clamp, in order to reach over some of the adjoining teeth in cases where the teeth have elongated. The clamps are in pairs; one jaw is a single point, the other two points. These pointed jaws permit of forcing up the gum to grip the root with the least possible pressure on the gum. The clamp is first adjusted and the rubber dam slipped over the clamp and adjoining teeth. With a floss silk ligature the edges of the rubber are brought around the edge of the root and tied to prevent leaking. This requires special care, as the root must be as dry as for any other filling. Removing the temporary filling in the post socket, the root is sterilized and dried. The How post, made ready in the post holder that comes with the How crowning outfit, a creamy mixture of oxychloride of zinc is made, and the end of the How post to go into the root is covered with it and immediately screwed home in the root. A portion of the cement is carried down in screwing the post home and seals the post in the socket. The surplus cement is wiped out of the counter-sunk cavity in the end of the root, as this is to be filled with amalgam. If the end of the post projecting from the root is too long to permit the crown, when slipped over the post, to make a good joint with the root, it is cut off with proper metal nippers. It may be necessary to bend the post in one way or another in order to make the crown cover the end of the root properly. This being done, we proceed to fill the end cavity of the root with amalgam. This amalgam filling is for two purposes: Preserve the root from decay and the crown from rotating. I have used cement for this filling, but found it would give way at the joint and permit decay to take place there. So I should recommend the use of amalgam in all cases. I have found that Garhart's White Alloy works nicely, also the "Splendid" alloy. The amalgam is packed carefully into the undercuts of the cavity and built up over the end of the root. The crown is carefully put into place, and with a wooden post of convenient size pressing firmly against the cutting edge of the crown, gently tap it with a mallet until the edges of crown and root meet. Continue to hold the crown with the post, and with proper instruments trim away the surplus amalgam. Carefully remove the crown to see if the amalgam is in sufficient quantity at every point, and trim the amalgam from about the How post, in order that the cement used to hold the crown in place may have sufficient grip on the post. The amalgam answers two purposes I have previously stated. Stops decay of the root where it is joined by the crown; for that reason care should be exercised to see that it covers the end of the root properly and that the cavity is so prepared as to retain the amalgam. It is not sufficient to depend upon its incorporation with the How post for retention, for therein lies the second purpose of amalgam, namely, preventing the post and crown from rotating. The amalgam if anchored in the root with undercuts remains firmly in place, and the crown having made its impression in the amalgam where coming in contact with it forms a base upon which it cannot rotate. This matter of rotation, in my experience, has been the greatest weakness, but with this method of treatment the possibility of rotation is made almost impossible. We are now ready for the last act, the setting of the crown. I use Justi's Insoluble cement. Mix this oxyphosphate of zinc to a consistency somewhat thicker than cream, quickly fill the socket of the tooth and the adjoining surface, place the crown on the root, and with the wooden post press firmly home; to make sure of it tap gently with the mallet. Hold the wooden post firmly against the set crown for several minutes, until the cement has set enough so the crown will not raise up, as it is likely to do because of the soft cement being under pressure. Trim away the surplus cement about the joint, while it is soft, being careful not to disturb the amalgam. Let the cement set for fifteen minutes at least, after which the rubber dam may be removed.

In crowning a bicuspid tooth, with two roots or canals, select the larger canal for the post; after the post is inserted bend so as to bring the portion for holding the crown in the center of the root, as in drawing *c* in diagram No. 2.

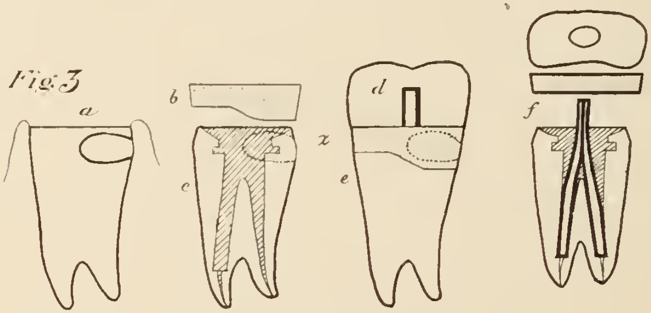
Fig. 2.



(*a*) Superior bicuspid root cut off for crown. (*b*) Sectional view of root prepared for How post and amalgam filling. (*c*) Section of root with How post and amalgam filling in place. (*d*, *e*) Root with How post ready for setting crown with cement. (*f*) Bicuspid root with single canal, How post in position.

Sometimes we have cases of fractured teeth where the break extends under the gum, or cases where the decay has destroyed the wall some distance under the gum. Many such cases require the support of a band. The preparation of

Fig. 3



(*a*) Bicuspid root cut off for crown, showing cavity below gum margin. (*c*) Section showing preparation for gold band, How post and amalgam filling. (*b*) Gold band shaped to cover cavity in root. Band and crown, (*d*) to be set at same time with oxyphosphate cement. (*x*, *d*) Band and crown in position on root. (*f*) Section of bicuspid root with How post in each canal. Gold band strengthened by gold plate soldered on top surface and perforated for How posts.

root and anchoring of post in such cases are the same as ordinarily employed, but the enamel margin of the root is removed and made slightly conical about its circumference.

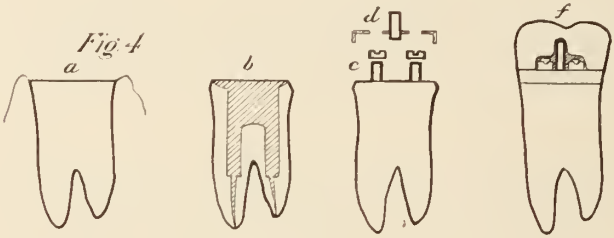
Then a band is fitted extending below the margin of the break or decay, and as nicely fitted as possible, as shown in *b* and *x* of diagram 3.

The edge of the band coming in contact with the crown should be filed perfectly flat and the corresponding surface of the crown ground flat to meet it. If the crown overlaps the band the surplus should be ground away until it is just flush with the band. In setting such crowns it is sometimes impossible to apply the rubber dam. It is necessary in these cases to keep moisture away by means of napkins and other absorbents. The most satisfactory astringent in my hands for preventing bleedings of the gums is a creamy solution of oxychloride of zinc gently wiped over the bleeding tissue. However, I am inclined to think the new astringent prepared by Parke, Davis & Co., Adrenalin Chloride, may prove satisfactory.

In the case before us I set the band and crown with oxyphosphate of zinc at the same time. Everything is made ready for immediate use. Parts of punk in abundance for absorbing moisture; small pellets of cotton ready to press cement home; cement on mixing tablet, and every necessary instrument at hand, that a moment may not be lost from rapid action when every moment counts in regard to the setting of the cement. Then the napkin is adjusted and the root and parts dried. The pulp canal has previously been filled and the post and the amalgam filling inserted. Having the parts dried, and if the gum is inclined to bleed, it is gently covered with the solution of oxychloride of zinc. The band is placed on the root, but not pressed home, just on far enough so it will not drop off. The oxyphosphate is mixed to a consistency somewhat thicker than cream, some quickly carried and filled into the cavity made by the band, more to the socket of the crown, which is then placed upon the retaining post and altogether driven home by means of the wooden post and mallet.

The cement will follow the band on the root and seal the root from decay. The joint between band and crown is so close as to prevent the disintegration of the cement, and altogether makes a very satisfactory operation.

For roots where the interior is greatly weakened by decay the same method may be employed. The band in such cases helps to strengthen the root, and for dentists who are partial to bands this method may be employed in all cases. Greater strength may be obtained for the band by soldering a plate over the band and perforating it to have the post passed through, as in *f* of diagram No. 3. The root in exhibit *f* has been treated with two How posts, one in either canal, and these brought together for holding the crown.



(*a*) Large bicuspid root cut off for crown. (*b*) Section showing both canals perforated for How posts. (*c*) Root with How posts in place and nut to be screwed on posts after gold cap is cemented in place. (*d*) Section of gold cap post for holding crown in center and perforation for passage of How posts. (*f*) Root with gold cap and Davis crown in position.

The last case I will describe is represented in diagram No. 4. A large bicuspid with two very distinct roots. A How post is set in either root, the root is banded with a plate soldered on the band. The plate perforated for the entrance of the posts and a central post soldered in the center of the plate for attaching the crown. The band is set with oxyphosphate of zinc, and permanently held by a nut on either post, as shown in *d* and *f* of diagram No. 4. The socket of the crown is enlarged by carborundum point to permit its fitting over the nuts and posts. I can conceive of no crown being firmer or more durable than this.

There are many possible cases that I have not touched upon, but I have described enough to show the principles, and I leave it to those who wish to try this method to make the application that their judgment dictates.

TIN FOIL, ITS MANIPULATION AND ITS VALUE AS A TOOTH-SAVING MATERIAL.*

BY E. BALLARD LODGE, D.D.S., CLEVELAND, OHIO.

For more than a hundred years tin has been used by the better class of dentists, by those who appreciated the tooth-saving properties of this metal to the capricious and unreliable character of the amalgams.

When in the early days dentists began to use tin foil they adopted a material which if not the ideal substance for filling teeth for restoring them to usefulness and combating the ravages of disease, still it met the needs of dentistry in a very large degree. Tin foil as a filling material is so well adapted for the purpose that it ought to be classed among the royal metals. Well has it been said that "if there were but one metal with which to save teeth more teeth could be saved with tin than with any other metal." Among the physical properties possessed by tin, is one not possessed in like degree by any other metal filling material, viz., that of very low conductivity of thermal change. Tin is a good non-conductor of heat and cold, and as compared to gold is nearly four times as good a non-conductor. This property of tin enables one to use it in close proximity to the dental pulp with little danger of irritation.

In the form of No. 5 foil chemically pure tin works easily and rapidly and is especially valuable because of its great adaptability to the prepared cavity walls. When cut into half sheets rolled in the napkin and cut into pellets of suitable size, its behavior is so kindly and its management so easy that it is a delight to use it.

Well prepared chemically pure tin possesses considerable cohesiveness and this property will be lasting provided it is kept from contaminating influences as air, moisture, or carbonic acid, all of which tend to oxidize it slightly upon the surface. The cohesive property has been doubted by some in the past, but is now generally conceded.

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*Read at Northern Ohio Dental Society, June, 1902.

Cohesiveness in tin foil is a very fortunate property. Without it we should be compelled to depend largely upon interdigitation, by which is meant the forcing of the particles of the tin into the mass of tin already inserted in the cavity. Unlike the amalgams, tin possesses the property of stability, that is, it remains in good contact with the walls of the tooth cavity. With tin there is not the possibility of shrinkage so common a fault with amalgam. There is not the danger of the so-called "spheroidal tendency," later known as the "flow" characteristic of amalgam.

Tin, like gold, is stable or remains exactly where it is placed, that is, in good adaptation to cavity walls.

The durability of tin in certain exposed positions is not as good as we might wish, but this short-coming is greatly compensated for in other properties. On the other hand, in positions where there was not great exposure to attrition tin fillings have been known to do good service for forty or fifty years.

Where combination fillings of tin and gold are made, it is believed that a molecular change takes place, rendering the material harder and more lasting than it otherwise would be.

The electro-chemical aspect of the subject is interesting but suffice to say that it is to the oxides and sulphids of tin that its therapeutic value is largely due.

Both these salts are insoluble in the fluids of the mouth, and both are antiseptic. The dark color which they assume is unfortunate, but in cases where they are not conspicuous it is not a serious draw-back. The oxidation of the portion of the filling in contact with the cavity walls exerts a favorable influence in that it hermetically seals the open ends of the dentinal tubuli and more perfectly protects all parts of the cavity than if it did not exist.

Nos. 5 and 10 Ambler's tin foil will be found well adapted for filling teeth where tin is indicated. The foil is prepared for use by the operator in a similar manner to which gold is prepared, namely, by rolling the lighter foil into ropes made from thirds or half sheets and cutting into pellets of suitable size. No. 10 foil is cut into tapes, one, two or three thicknesses. The No. 10 foil is especially adapted to filling the first permanent molars of young children where extensive fissue cavities develop upon the occlusal surface. Frequently we have these teeth only partially erupted, which are in need of filling and where it is difficult or impossible by ordinary means to fix a clamp. In such cases No. 10 foil can be introduced with the Watling tin instruments, using hand pressure, with very little trouble.

If asked in what cavities would tin be regarded of special value, the writer would say: in the first permanent molars of young persons, in extensive cases of proximal decay, in the bicuspids and molars (especially such as extend beyond the gum margin), for persons of all ages, and in such other cavities as may be obscured from view as lingual cavities in the incisors.

Tin foil used in connection with gold foil often makes one of the best of fillings. In this way we secure the peculiar advantages of both metals. Cohesive gold foil No. 4 if annealed to redness in the alcohol flame or the electric annealer, will adhere with remarkable tenacity to tin in the pure state, and interdigitation is not necessary to insure stability. It is important, however, that the tin already inserted into the cavity be not too much malleted as that impairs the receiving surface. In working tin foil in the filling of teeth the same instruments may be used as would be employed with gold. The Watling set of gold pluggers are admirably adapted to the purpose and especially when using the lighter foils. The writer also finds that with the addition of two matrix pluggers, one right and one left, he is able more satisfactorily to condense the foil between the matrix and the lateral walls of disto-occlusal cavities. These pluggers are foot pluggers and are made with special reference to these cavities in the bicuspids or molars. They are also of flat-iron-shape so that the foot portion can be inserted to the extreme part of the angle made by the matrix against the beveled cavity margin. These pluggers may be obtained from the S. S. White Dental Mfg. Co., at three dollars per pair. They are also used for gold, as well as tin. The mallet used by the writer is a four-ounce Jennings mallet.

Before the final polishing of a tin filling smooth steel burnishers of appropriate form and size should be employed after lubricating to more thoroughly condense the material just as in the case of gold, after which the filling may be dressed down with the usual instruments. As much should be charged for a filling of tin as for a filling of gold, minus the cost of the gold. But it should be employed only where it is believed as saving or more saving operation may be made.

It is the belief of the writer that tin foil should be one of the dentist's main allies in the saving of teeth, and that it can be made so the writer has no doubt. The large use now made of tin in the technique work of dental students in our principal colleges and the approval of tin by many of the best dental educators will have its influence in the way of promoting the use of the metal in the saving of teeth.

SEPTIC ROOTS AND THEIR RELATION TO BRIDGES AND CROWNS.*

BY DR. J. V. ANDERSON, KANE, PA

One of the things with which we are confronted occasionally is an old septic root, with a request to either crown or attach a bridge to it, and while I do not pretend to tell you just to what degree they may be treated and made useful for crown or bridge purposes, I wish to inform you of some observations I have made, and ask you if in your experience you can corroborate my statement.

First, as soon as the crown of a tooth is decayed away or broken off to such an extent that the occlusion is lost, the root begins to rise out of the socket, and new and tender tissues begin to fill in to take the place vacated by the removal of the root, and when these tissues are of an abnormal organization, as in the case of septic conditions, it is almost useless to try to bring that root into active service, especially to require it to do two or three times as much work as was required of it in its normal condition, as would be the case if it were to become an abutment for a two or three-tooth bridge.

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*Paper read before the Lake Erie Dental Society, May, 1902.

I have never seen a tooth elongated to such an extent that it was noticeable to the eye, put back into its original position. I have seen a good many teeth elongated, that were tender to bite on when the occlusion was restored.

I recently had a case which I considered critical. It was a lower third molar, holding one end of a three-tooth bridge, and was ulcerating. I drilled through the crown, and treated the roots through the opening. The swelling reduced rapidly, and it seemed to yield to the treatment very satisfactorily for a while, and then I noticed on removing the application that it would have a putrescent odor, so I decided to remove the bridge and make a more thorough investigation. In removing the bridge, the crown broke off at gum line. I made a new and better fitting crown for the root, and then drilled the root canals out about half or two-thirds their length, into which I placed small gold tubes, which I made by bending thin gold plate around a nerve brooch. I then put some soft wax into the crown, and put it in place. This marked where the tubes would come through the crown were they long enough, but I had purposely cut them off, so they would be about one-eighth of an inch shorter than the crown. I then drilled a hole through the crown, finished the bridge, removed the tubes, thoroughly dried the root canals, placed cream of cement around the tubes, and replaced them, being careful to leave the lower ends of the tubes and root canals open. I packed the cement carefully and tightly around the tubes, then stopped the upper ends of the tubes with cotton, and cemented the bridge into place. After the cement was thoroughly set, I drilled it away around the top of the tubes, removed the cotton, and treated the root canals through the tubes, and sealed the cavity with gutta-percha stoppings.

I might add that before I sealed the cavity I drilled away more cement than was necessary to reach the tubes, and covered the bottom of the cavity with high heat gutta-percha, which is very hard, and used Hills' stopping, which is much softer, with which to seal. This keeps the cement perfectly dry at all times. This treatment has proved very satisfactory to both patient and myself. When the crown broke off, the patient had very little if any faith in ever using it again. He said recently that he believed that I could do anything I liked with teeth, and that is the reputation I wish to attain. As long as I can maintain such a standing in the minds of the people for whom I work, I will feel that I am a success as a dentist.

SOCIETY PROCEEDINGS

NORTHERN OHIO DENTAL SOCIETY.

A METHOD OF INSERTING ARTIFICIAL CROWNS.*

DISCUSSION.

Dr. G. H. Wilson, Cleveland: If we all agreed with the doctor as to detail, we would have no discussion, so while I agree with him in the main, I want to point out some small things in which we differ.

He has made the statement that union between the root of a tooth and the dowel pin is stronger with this method, and that is so if too much of the substance is not sacrificed in preparing the root. One point to consider is that this pin is round, and will require more destruction of tooth substance than a flat pin. Unless we use great care in cutting, there is always danger of perforating the root. I think we have all seen such cases, and it requires greater judgment in using a pin of this kind to know just how far to cut. I also think this illustration is a little overdrawn; he has represented the dowel pin as passing too far into the apical third of the root. It is a common saying that the dowel pin should be as long as the crown; I do not think it is necessary to go quite so far as it is represented.

A point which I would commend very strongly is this, that he closes the root over thoroughly. One must be careful, as the doctor has said, that the labial surface is not exposed, else it will give an unsightly appearance about the gum line.

Regarding bands, I think there is a growing sentiment in the profession to the effect that the less we use bands, the better. In some of these cases it is necessary to use them to get strength, but in using them we should keep them upon the lingual side, having none upon the labial surface. Then there are cases in which the tooth is decayed well under the gum, or where the tooth has split extending beyond the gingival line, as sometimes happens, and it is impossible to get the band below the fracture.

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*This paper is presented on page 441 of the current number.

We have another process which we call a plate and pin method. We use a plate of pure gold, or platinum, of 36 guage, or near that number, we carry it over the end of the root so that it is perfectly adapted, and then we insert the dowel pin, marking the point at which it should go; the plate and pin are then removed and soldered, when it is readjusted and an impression taken.

The doctor mentions using a low fusing porcelain. That, I believe, is going out of use, and the high fusing porcelains are mostly used now. The S. S. White Co. are putting out a high fusing porcelain that has about the same fusibility as Close's continuous gum body. By using this body we have perfect fusion to the porcelain facing. The doctor condemns gold crowns upon the anterior teeth. I must say that such use of a gold crown is always abominable.

Dr. H. E. Dunn, Warren: In the undercut which Dr. Owens makes to retain the amalgam, the strength of the tooth is lessened. This point could be bettered by the use of cement. The root could be concaved and a sticky, quick-setting cement be placed upon it. Pack a wafer of not too dry amalgam, upon it, wait until cement sets, otherwise manipulation will cause it to granulate. Clean margins and finish with amalgam containing less mercury. This adds to the strength of a band instead of weakening the root.

I like this crown, as it has many good points. I agree with Dr. Wilson that Dr. Owens sets his post too deeply.

Speaking of fractured roots recalls a case I had about eight years ago. The buccal wall was broken to or a little below the edge of the process, making it difficult to band without impinging on the pericementum; therefore it was not allowed to come quite to edge of fracture. By thinning that edge it would, by pressure, adjust itself to the uneven surface of the tooth, leaving a perfect fit after the bur was dressed off. After contouring, the top was filed flat, a bite taken in modeling composition, and models poured. Wax was then placed in the band and cusps carved to occlude with upper. The band and wax top were removed and inverted in soft plaster, into which impression Molyneaux's metal was poured to be used as a die in asbestos. A top was cast to which four guides were soldered to secure perfect adjustment to band and to catch in the cement. The gum was pressed well back by gutta-percha held in position by a tack in the pulp canal. After the gum had healed from all lacerations the root was dried thoroughly and the band set with cement on three sides of it.

The object of the open band is now to be attained by the packing of gutta-percha on the fractured side, where cement would surely become disintegrated. Fill the band with cement and place the cap upon band. This crown is perfect after eight years' service.

The mention of repairing reminds me of a new facing that I am using, called the Dwight detachable facing, made at Le Mars, Iowa. It consists of a facing with a platinum box inlaid, into which a three-pronged dowel fits. The dowel is placed in the backing and after all soldering is done the facing is set in cement. It has the advantage over other detachable facings in that it can be thinned on cutting edge if desired, and easily replaced if broken. I have one here which I pass around for inspection.

Dr. W. T. Jackman, Cleveland: I notice that in the specimens of work sent around the room by the doctor that there is amalgam used, and I want to ask if the amalgam ever discolors the gum.

Dr. Owen: No, I never had it discolor, and I should never expect it to occur because it is in such a small quantity, so little that shows on the labial side, anyway, that I do not think it would ever happen.

I have very little to say in closing the discussion. Of course I do not present to you a perfect system, and besides there are cases of course in which a system of this kind would not be as satisfactory, perhaps, as some other method for the particular case, but for uniform results, I think this is better than any other.

In regard to the length of the pin, of course you can have your pin as long as the crown if you like. With a longer pin there is less danger of splitting the root. The leverage is such that I think, perhaps, the longer pin is safer. In regard to the fracture below the gum, let us suppose we have a fractured tooth like this. (Here makes diagram on blackboard.) Let us suppose the central portion is broken down below the gum, on this side, and above it on the other. You can make your band something like this, shaping it to fit the conditions, but the chief advantage that I claim is that the band can be set by itself, and you have everything to help you. I press this gum away with gutta-percha for several days before I operate, and then take your band and place a little cement on the side where the break of the tooth is highest, and press it down into position, and pack more cement through the opening to fill the entire portion, and grind the crown of the right shape to fit the band, and then you have a splendid foundation upon which to set your crown. So you will see that the matter of cutting that portion of the tooth off below the gum is not necessary.

In regard to occlusion of the anterior teeth. The tendency is to bend over and leave exposed the lingual joint. Now, this crown will not do that and that is the beauty of it. If there is to be any bending of this crown, it is not going to decay here on account of this amalgam filling, for it is held down firmly with cement, and there is no "give" to the dowel pin, and the only way it can move would be for the post to stretch, which it is not likely to do.

By incorporating the amalgam with the cement, while it does stick to it, yet it does not stick to it so well as it would if it were all amalgam. We fill in the undercut and connect it with the thread of the post, and it is almost certain to remain.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

PORCELAIN BRIDGE WORK.

BY J. E. NYMAN, D.D.S., CHICAGO, ILL.

Among the matters in discussion and dispute among the members of the profession, with able advocates and antagonists endeavoring to sustain their respective positions, both by argument and demonstration, is the subject upon which I address you.

There are those who vehemently denounce in toto porcelain bridge work as unworthy of application anywhere, and they point to the numerous failures they have had in their own practice and observed in that of others. Filled with disappointment and disgust, they removed the wrecks, glanced at them superficially, threw them into the scrap heap, cursed the hour they ever took up porcelain bridge work, and went back to the old methods which, while they did not yield such artistic results and sometimes failed in detail, very seldom broke down utterly—an enemy from that time forth to anything porcelain.

There are others who have met in their practices and have observed in others, similar failures, and have felt the same disappointment and disgust, but having been endowed or having acquired the trait of philosophy, have not in those perturbed moments forgotten that there is a relation between cause and effect, that there is no result without a reason for it; and so instead of a superficial examination have scrutinized it closely, instead of throwing the wreck among the scraps, have laid it carefully to one side to be pondered over later on in the calmer moments, and realizing that there was a cause or perhaps causes for the failure, have sought for them, found them, and finally, it may be after long study and experiment, but finally have corrected or eliminated them, and so by patient, persevering effort, profiting by experience, sustained by enthusiasm; some have turned failure to success, have convinced themselves and are convincing others that porcelain bridge work properly executed under proper conditions is a success.,

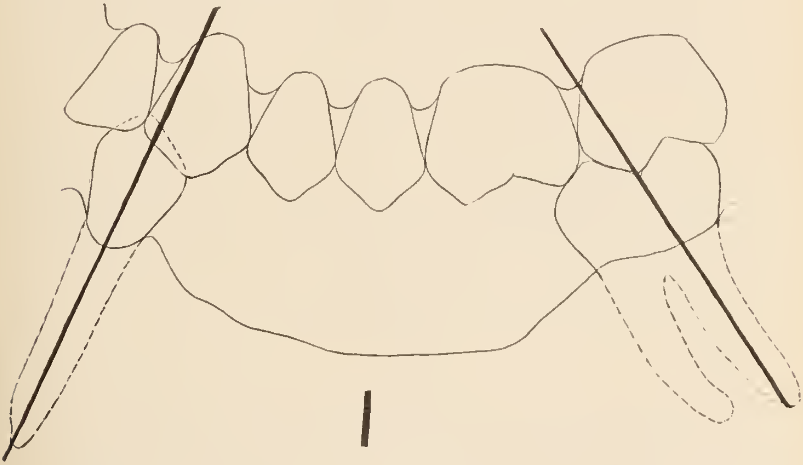
And even among those of us who believe in and construct porcelain bridges, there is dissension and discussion; principally over the question of saddles imbedded permanently in the gum of the intervening space between the teeth used as abutments.

Those opposed to them under all circumstances report the many instances in which they have found masses of hypertrophied tissue, tender to the touch and bleeding upon the least irritation at points along the edge of the saddle, or the cases where the gum has receded from the saddle and left a crevice into which debris of food has wedged, degenerating into a fermenting mass, causing foul tastes and odors, and inflammation of the tissues.

Others who have observed gold bridge work with porcelain facings attached have noticed that the necks of the facings have been intentionally, and some of the metallic structure unintentionally, imbedded with a haphazard manner in the gum tissue without pathological results, believe that a polished metal surface upon which the secretions of the mouth have no effect, which was accurately imbedded in the tissues, would yield similar results, favor them in cases that are favorable for them and believe that there are reasons for these pathological sequences sometimes found, and that they may be obviated. These will be discussed later.

There are general considerations involved in the application of bridge work such as regards the number, situation and condition of teeth or roots which may serve as abutments, their situation with regard to the curvature of the arch where the bridge is to be inserted and their position in the jaw, as to whether they have become tilted through the loss of the adjacent teeth and abnormal articulation, and require regulating previous to the insertion of bridge work. But these are matters of a general rather than of a special nature, and are not considered to be within the scope of this paper, but might form a theme for a paper upon that subject.

We will assume that a case indicating and favorable for a bridge has presented itself, the first question is, shall it be of gold or porcelain? This depends primarily upon the length of bite over the anterior abutment and the vacant space. The length of bite over the posterior abutment, if it be a molar, may be disregarded, as a metal crown may be constructed for that, if necessary.



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The length of bite may best be determined by taking a bite and impression of the case as it stands, constructing articulated models and determining this point by measurement; if there be a space of 5 mm. between the gum and the occluding cusps and of a 4 mm. between the probable point to which you may grind the anterior abutment and its occluding cusp, then you may safely decide to insert a porcelain bridge.

The next question is as to the nature of the crown to be used for the posterior abutment; if the length of bite be less than 4 mm., as before indicated, or if the compensating curve of the jaw be great, so that the axes of the abutments converge markedly (Fig. 1), a platinum shell crown had best be used, always strengthening the anterior half of the band by soldering on an additional piece of platinum plate.

Then arises the mooted question of a saddle for the bridge. If the gums are in a healthy condition and a year has elapsed since the loss of teeth a saddle may be used, but—

If any general pathological condition of the gums exist.

If the teeth have been but recently removed.

If the buccal ligaments are attached to the median line of the ridge.

Then a saddle imbedded in the gum is absolutely contraindicated.

I do not ever regard a saddle as a necessity, but do regard one as the means of obtaining the best results from a mechanical, hygienic and artistic consideration.

They may be considered indicated and may be applied at any point in the mouth if conditions are favorable.

While a saddle bridge is the strongest porcelain bridge that may be constructed, the saddle itself cannot be regarded as an element of strength, the resistant power of twenty-eight gauge platinum (the heaviest gauge to be used) to longitudinal stress is a negligible quantity.

The saddle bridge is stronger than any other porcelain bridge for the same case would be, because the bulk of porcelain is greater, the area of its cross-section is greater—due to the fact that the accurate adaptation of the saddle permits the extension of the porcelain to the gum, a procedure which if attempted without a saddle would lead to disastrous results.

The causes of pathological conditions in the tissues covered by the saddle and adjacent thereto may be due—

To rough edges or surfaces.

To too deep imbedment in the tissues.

To too slight imbedment in the tissues.

To foreign matter (usually cement) imbedded beneath the saddle.

To the impingement of the saddle upon the buccal ligaments.

Any and all of which will cause a serious disturbance of the circulation of the aforesaid tissues.

The pernicious influence of rough edges or surfaces in contact with gum tissue and of foreign substances imprisoned beneath the saddle is so patent to every one that it need not be dwelt upon.

The deep imbedment of the saddle in the tissues will cause hypertrophy or atrophy according to the vascularity of the tissues. In highly vascular tissues it results in stasis, increased blood pressure, dilation and final rupture of the walls of the minute blood vessels. The blood is forced into the intercellular mass of the tissue and a hypertrophy results extremely tender to pressure and bleeding upon slight irritation. This extends until the entire region becomes so painful that the bridge must be removed, or infection occurs at the time of some of the hemorrhages, and a condition ensues which necessitates its removal.

In slightly vascular tissues stasis results, diminished blood supply owing to the low pressure of the circulation, atrophy, a formation of a crevice between saddle and gum into which food wedges, ferments and causes conditions which necessitate removal. If too slightly imbedded particles of food will soon be forced just under the edges, causing similar conditions and results.

The impingement of the saddle upon the buccal ligaments causes irritation every time the mouth is opened by the stretching and rubbing of them over the edges of the saddle, resulting in inflammation, which increases until it can no longer be endured.

The imprisonment of cement, due to the escape of the surplus underneath the saddle during the setting of the bridge, may be avoided by setting with gutta--percha and by other means to be referred to later on. Precautions should always be taken to have the surfaces of the saddle and the gum scrupulously clean.

A saddle imbedded in the gums under favorable conditions that—

Has no rough edges or surfaces.

Has no foreign matter imprisoned beneath it.

Does not impinge upon the buccal ligaments.

Does not seriously disturb the circulation of the adjacent tissues, and

Is accurately and tightly imbedded in the gum, may be expected to, and does, yield permanent results.

The causes of the numerous failures of porcelain bridges and the manner of elimination are about as follows:

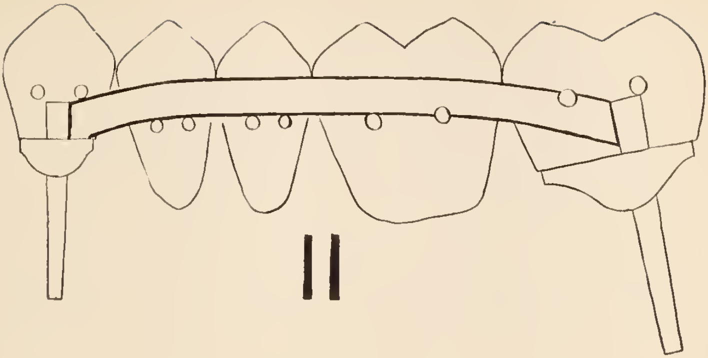
Disregard of the length of bite.

Inaccurate fusing—corrected by the use of some material the fusing point of which was identical with that of the porcelain and which could be observed.

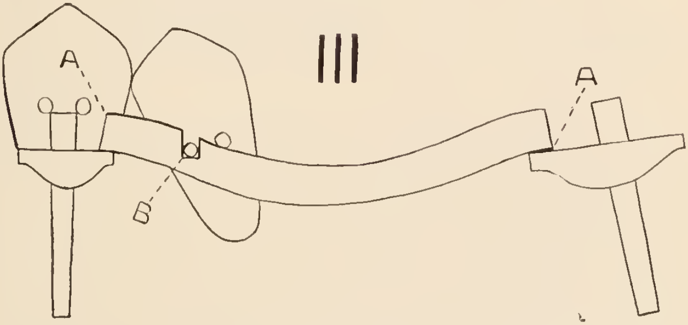
The use of low fusing bodies, which were lacking in structural strength—corrected by the use of high fusing bodies possessing high structural strength.

The use of gold as a solder, rendering it necessary that every joint should be a perfect contact, a thing very difficult to accomplish and often unattained, with the result that the framework separated at one or more points during the fusing of the body, throwing the entire stress upon the porcelain alone, which sooner or later gave away at those points. This was obviated by the use of platinum solder, devised and introduced by Dr. Ames.

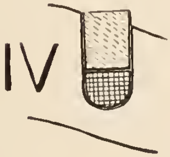
Injudicious judgment in regard to the relative proportion of metal farmework and porcelain led first to insufficient amount of framework and then to the other extreme, so great an amount of metal structure that there was room but for thin veneers of porcelain. The error was frequently made of placing the cross beam too close to the grinding surface.

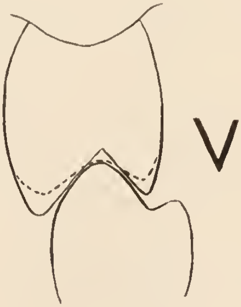


(Experience finally led to the adoption of a rational proportion, which has yielded splendid results.)



The failure to extend and solder the cross beams to the posts of the abutments.





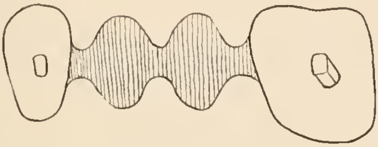
The cutting of a deep groove in a cross beam to receive the pin of a facing tilted to accommodate some peculiar articulation without filling in the gap (Fig. III.), by soldering in a piece of iridio-platinum wire.

The carving of deep sulci and the building up of high, sharp cusps for artistic effect, allowing the occluding cusps to exert a wedging force buccally and lingually whenever the teeth are brought together with food between them.

Bearing in mind these factors of failure, construct your abutment caps as for individual crowns, using as large posts as possible and bands with deep lingual portions reinforced with solder. Adjust the posts as nearly parallel as it is possible, place caps in position with a little wax about the posts to hold them securely in place. Take a plaster impression and a wax bite. Remove the caps from the impression, trim away any part of it, buccally or lingually, except within a distance of four millimeters from the median line of the ridge, that will prevent a plaster model from separating. Varnish thoroughly, fill holes left by posts and the depressions left by the teeth with cotton saturated with vaseline, and pour a plaster model, including only the abutment impressions and the intervening space.

Trim this model so that it will draw readily from sand, construct a babbit metal die, swage a piece of platinum of from 28 to 30-gauge, according to the density of the gum tissue, extending to within one-half millimeter of the edge of each abutment and 4 millimeters buccally and lingually from the medium line of the ridge.

Fill the caps, and coat the posts with wax, remove the cotton from the original impression, replace the caps, invert the saddle and place it in position between the caps; pour plaster model, mounting it on an articulator at the same time. Upon separating the model from the impression the saddle will be found imbedded to a uniform depth equal to the thickness of the metal used. This is the only method by which the saddle may be imbedded uniformly in either the model or the gum tissue. It is impossible to scrape any extent of surface of plaster to a uniform depth, owing to the varying density of the material. The wax bite is now placed upon the model and the occluding model is run, giving an approximate articulation. The cross-beam, which should be of 12-gauge iridio-platinum wire rolled to 15-gauge, is fitted to the case with its large diameter placed in the line of greatest stress, adjusting it as close as possible and allowing two-thirds of its width to extend buccally beyond the median line. (Fig. VIII.), and bringing it in contact with the posts and caps of the abutments, wax in place. Now grind the facings approximately to place, and while in such position mark the contour of their necks upon the saddle and trim the intervening material at points corresponding with the interproximal spaces. (Fig. VII.)



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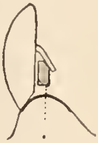


VIII

Having waxed-caps, cross-beam and saddle together in their relative positions, remove them from the model, invest and tack them together with 25 per cent. platinum solder. Polish the inner surface of the saddle and round its edges. Adjust the metal structure upon the roots. If the saddle impinges upon the buccal ligament at any point it must be trimmed away until it no longer does so, the facing being ground afterward to correspond.

Dry the roots and canals, place some Gilbert's stopping about the posts and force the structure firmly to place upon the roots and gum.

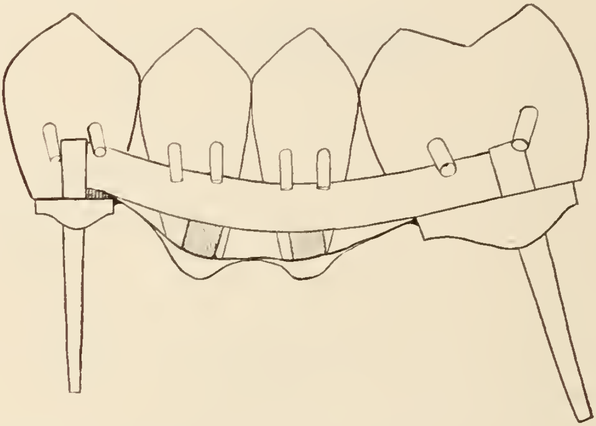
Should the gum along the edge of the saddle at first blanch, but regain the normal color in a couple of minutes, gently burnish the edges into the tissue until it blanches again. Cease burnishing upon any evidence of pain. If the gums regain their color within a maximum limit of ten minutes, you may feel assured that you have not seriously disturbed the circulation of the tissue, and that trouble will not ensue. An impression and bite is taken at the same time in modeling compound.

Again fill caps and coat posts with wax, and obtain the articulated models. Remove structure, reinvest and thoroughly solder all the parts.

Flatten the surfaces of the pins of the facings to obtain as great contact surface with the cross-beam as possible.

Articulate the facings, wax them in position, invest, allowing the investment to extend over the cutting edges. After the investment is thoroughly hardened remove the wax, bend the pins into close contact with the cross-beam. Trim away the investment, exposing the inner surfaces of the facings, solder with pure gold, using the least amount possible, and maintaining the heat which the gold flows for a period of about 30 seconds.

VI



(This represents the relative size and positions of the different structures of the bridge in its skeleton state.)

Gold is used as a solder to avoid the discoloration of the delicate yellow shades of the necks of the facings, which frequently results from the high heat required for flowing platinum solder. After removing from the investment the film usually found upon the platinum, structure is removed by polishing roughly with pumice and coarse sand paper discs. Care is taken that all particles of the investment material have been removed from the many crevices of the bridge in this skeleton state. Porcelain body is now applied in the usual manner and is fused to a point just a little above that of biscuiting. This is done to avoid the bubbling, which frequently occurs after the numerous fusings required for a bridge.

Just before the final fusing, fuse in some pink gum enamel between the necks of the facings. Even though this does not accurately match the color of the gum, it approximates closely under the conditions of light and shadow obtained in the mouth, gives a line of demarcation between the teeth and avoids the one-piece appearance often seen in porcelain bridges on which the gum enamel has not been used.

After completion verify the adjustment and articulation by trial in the mouth. If this be satisfactory the bridge may be set with either gutta-percha or with cement—preferably with gutta-percha.

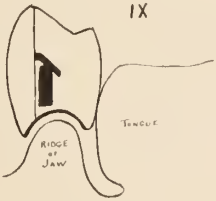
If set with cement, loop two ligatures about the bridge at the juncture of the saddle and abutment caps, in which a piece of cotton has been fixed in a knot; then, after the bridge is set, draw out the ligatures, the knotted portions of which will force out the surplus cement.

Bridge with suspended saddle.

Should there be positive contraindications for an imbedded saddle, a bridge may be constructed with suspended saddle that will not impinge upon the gum, as follows:

Take impression and bite with abutment caps upon the roots. When model is obtained fit a piece of sheet wax of about 1 mm. thickness between the caps, adjusting it to the model and trimming it as before indicated.

IX



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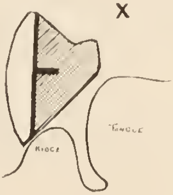


Take impressions of this wax piece and caps; obtain dies and swage a piece of 28 or 29-gauge platinum, allowing it to extend over on top of the caps; this, after being fitted to place, will be suspended above the gum a distance equal to thickness of the sheet wax used. Proceed from this point according to the directions previously given.

The same precautions must be observed in regard to the buccal ligaments with the suspended saddle as with the imbedded saddle.

This bridge, whose cross-section is indicated in Fig. 9, is preferable to the usual gold and porcelain bridge with the triangular cross-section (Fig. 10), because it is possible to give it quite a little lingual contour, and the extension of the lingual wall so close to the gum lessens the liability to accumulation of food beneath the bridge, while it does not increase the difficulty of removal of debris; this is especially true of lower bridges.—*Dental Review.*

THE NECESSITY FOR OCCLUSAL ANCHORAGES FOR FILLINGS PLACED IN THE MESIO OR DISTO-OCCLUSAL SURFACES OF BICUSPIDS AND MOLARS.

BY W. H. K. MOYER, D.D.S., LITTLE FALLS, MINN.

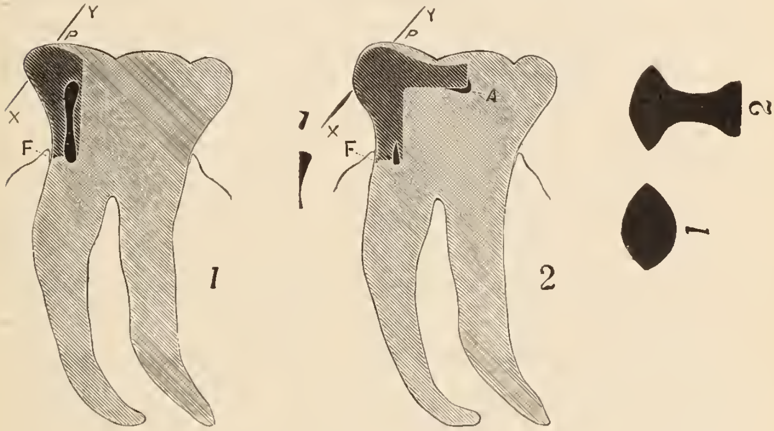
For so-called proximo-occlusal fillings in bicuspids and molars, where the material to be used depends on the shape of the cavity for support, there are but two general methods of anchoring—one being by means of pits or grooves in the lingual and buccal walls, the other being by means of a step cut in the occlusal surface at right angles to the main wall of the cavity. In comparing these methods we must consider the advantages and disadvantages of each, taking into careful consideration the tests which such fillings must withstand.

The adult human can exert a crushing force of from 100 to 300 pounds on the posterior teeth.

In the drawings before you sections of teeth with samples of fillings anchored by these different methods are shown, also the direction of the line of force which is most apt to dislodge them.

In Fig. 1 is a representation of what I shall term lateral anchorage. The grooves are started at the linguo-gingivo-axial and bucco-gingivo-axial angles, and extend occlusally to the dento-enamel junction, or, roughly speaking, two-thirds of the entire depth of the cavity. Beyond this point we would be depending for support on enamel, a substance unworthy of consideration for anchorage purposes.

Fig. 2 represents an occlusal anchorage. Two slight grooves at the linguo-gingivo-axial and bucco-gingivo-axial angles extending very slightly toward the occlusal, then a right angle step at the occlusal running back into the middle third of the occlusal surface and slightly dovetailed in form.



This occlusal step is cut just through the enamel, so that the filling rests on the resilient dentine and is secured by slight grooves in the dentine at point (a).

The preparation of the two cavities, aside from the anchorage, is supposed to be identical. With the lateral anchorage what have we done to the tooth?

We have weakened it at a vital point where our fillings are prone to fail. We have cut nearly if not quite through the dentine of the lateral walls, leaving little but friable enamel for support, and at the occlusal third have no anchorage at all. With the occlusal anchorage we have weakened the tooth at no essential point—in fact, have strengthened it by cutting out and filling the fissure, which in a large proportion of cases is a danger point., ,

The filling is anchored entirely in dentine and rests securely on two flat seats of dentine, so that the slightest anchorage suffices. By means of the step anchorage and dovetail it is so secured that to move it a fracture of an entire lingual or buccal cusp is necessary.

Let us examine the strain the anchorage points are subjected to by using different lines of force.

A force exerted at right angles to the occlusal surface at this point forces each filling against the seat, therefore is in no way dangerous. But as we incline the line of force in Fig. 1 the tendency is to push the filling away from the cavity walls, with nothing but the lateral anchorage to hold it in place, so the strength of the lateral walls or of the filling material in the anchorage grooves is a gauge of the amount of stress the filling can withstand.

In Fig. 2 the filling is forced more tightly against the floor of the step of dentine and cannot be moved except by a fracture of the filling at the angle of the step.

When the force is exerted at P at right angles neither filling is endangered, but if inclined a few degrees the tendency in both cases is to tip the filling out of the cavity.

In Fig. 1 the strain comes directly on the lingual and buccal walls at the point where we have previously weakened them, and frequently results in a fracture of one or both. In Fig. 2 the strain comes on the whole pillars of the cusps, the strongest parts of the teeth, for to move the filling in the step it must bear directly against these cusps.

In each of the illustrations a force exerted at point (P) at this angle would tend to tip the filling out of the cavity with the cavo-enamel margin at F as the point of least movement. It would convert the fillings into levers with point F as the fulcrum. The weight to be moved would be the amount of resistance the anchorage points would offer.

A force of 200 pounds in Fig. 1 would exert a strain on the anchorage grooves of 300 pounds, while in Fig. 2 the same force in the same place on the filling would exert a force of only 200 pounds on the anchorage, or two-thirds as much as in Fig. 1, so that if we grant an equal strength for both methods of anchoring we still find the evidence in favor of the occlusal one. It also shows that in those cases where the dentine, which would naturally form the angle of the step, is gone, we are still justified in placing our anchorage occlusally instead of grooving the lateral walls. The further away from the main cavity we run the step the greater becomes our leverage, so that in cases which show evidence of strong occlusal force we can, by increasing the length of our occlusal step, guard against this force by strengthening our anchorage, while with a lateral anchorage we could do nothing but enlarge the grooves, and would only succeed in still further weakening the lateral walls.

You will find that it is not an unusual occurrence for one mouth to contain several fillings anchored in the lateral walls that have been moved enough to allow of leakage or even the admission of the fine exploring point. If decay has not taken place under such a filling it is only a question of time until it will, provided the patient has not reached a condition of immunity.

I have yet to see a filling so anchored that has failed for lack of support. They may fail for a variety of other reasons, but they do not move away from the cavity walls.—*Extract from Review.*

OPEN FACED CROWNS.

HART J. GOSLEE, CHICAGO.

The practical value, use and abuse of the so-called window or open faced crowns is a question of material importance and significance, because of the fact that from their application one of two conditions must result. Either *less* destruction of the natural tooth will become necessary than for any other style of crown, or means of attachment, or *greater* destruction will accrue from their use.

Without question, or doubt, one of the greatest *curses* to the success and practicability of modern bridge-work has been occasioned by the indiscriminate and unskillful use of such so-called crowns or bands, for the attachment of artificial teeth, and more *good* natural teeth have been lost, and more failures recorded than can be directly attributed to any other one cause.

From my experience and in my own work I condemn the general application of such devices as being inartistic, injurious to the conservation of the tooth structure supporting them, and a menace to the permanency and success of the bridge of which they form a part.

Yet, while this is *generally* true, there are instances where such crowns *may be useful* and serviceable if *properly* constructed and adapted.

If their application be confined mostly to the cuspid and lower incisor teeth, or where the normal shape of the natural teeth is favorable; if the approximal walls of such teeth are then properly paralleled and their proportions sufficiently reduced to afford opportunity for the accurate adjustment of a *crown* and not a *band* to the remaining tooth; if the fit is close at the neck, and the entire lingual surface and occlusal end covered, and the edges all brought to a position in relation to the labial surface of the natural tooth, which will make them self-cleansing, and the crown is then built strongly by sufficient and uniform re-enforcement, even at the expense of grinding the opposing teeth, if necessary, such an attachment may be found useful and reasonably permanent.

They may be useful and practical when *all* of these requirements have been observed, because of the fact that their application does not necessitate sacrificing the natural crown to the gum line. This fact renders possible the obtaining of greater strength in the attachment of the crown to the tooth, which is often essentially desirable in long bridges, where these abutments will be subject to much stress.

Particularly is this so in the lower anterior teeth, where to preserve the natural crown will often increase the strength of the attachment by distributing the leverage and stress, and where to destroy or sacrifice it would often mean to weaken the attachment or to lessen the possibilities for securing the greatest degree of integrity. This also frequently holds good in the lower cuspid teeth when they are used to support more or less extensive work.

In the construction of such crowns for those cases in which they seem indicated, it is desirable to make them of a grade of gold sufficiently soft to be easily and closely conformed to the tooth, and when this adaptation has been secured, the *required* re-enforcement and *uniform* stiffness can then be best made with small pieces of thin clasp metal laid on the surface consecutively and attached with small bits of high grade solder.—*Extract Items.*

SOLDERING HINT.

BY L. C. TAYLOR, D.D.S., HARTFORD, CONN.

When soldering crowns or bridges requiring a number of pieces of solder, first pickle well in acid so surfaces will be bright, then place solder in quantity about as needed, drop a few drops of sticky wax on it to hold solder in place, put borax over the wax, and heat up slowly to dry out. Then with blow-pipe bring the mass to a white heat, allowing the wax to burn out, and see how quickly the work will be completed without the solder crawling with borax or dropping from some slight jar of the case. The solder for a full plate can be put in place when plate is cold under the above method with great satisfaction. It has been suggested that the borax would flow with the wax, soak into investment, and crack the porcelain, but I have soldered with this method for more than a year and have never had a porcelain crack. Several friends to whom I have suggested this plan report that they are employing it all the time with gratifying results.—*Dental Digest.*

SUGGESTIONS

Treatment of Pyorrhea Alveolaris.—Robert Good.—He first washes out the pockets well with sterilized warm water, and, after injecting a 12 per cent. solution of cocaine into the pockets, proceeds to clean the deposits from the teeth with Dr. Young's pyorrhea instruments. After cleaning off all the deposits, he floods the pockets with C. P. lactic acid, warmed. This, he claims, will destroy the diseased tissue in the pockets and start healthy granulations, bringing about a union between the hard and soft parts.—*Extract Cosmos.*

Method of Constructing Porcelain Bridge-work.—G. W. Schwartz.—He demonstrated by an exhibition of models his method of constructing porcelain bridge-work, the novel feature of which consisted in forming and enclosing the V-shaped surfaces of the bridge or dummy teeth on the palatal side with pieces across the bridge from one abutment to the other, leaving the occluding surface of the porcelain exposed. The object is to give to the bridge section strength to resist the force of occlusion in which porcelain bridge-work is found deficient, except in cases when the force is light or the occlusion is quite an open one.—*Extract Cosmos.*

Zinc Oxide in Dental Therapeutics.—J. M. Barrellier.—Dr. Barrellier reports very favorably upon the use of cotton impregnated with a paste of hydrogen dioxide and zinc oxide as a temporary filling. Fillings made with this material were removed, after a sojourn of about a week, from mouths unhygienically kept, and were found to have been but slightly penetrated by the buccal secretions.—*Cosmos.*

Treatment of Cellulitis Due to Alveolar Abscess.—The swelling and inflammation of the cellular tissues of the cheek caused by the infiltration of pus from an alveolar abscess can be very much relieved by the application of the following modification of the old preparation of lead water and laudanum:

℞—Liquoris plumbi subacetatis, flʒss;
Tincturæ opii, flʒ ij;
Aquæ destillata, ℥vj. M.

Sig.—Saturate cotton compress and apply upon inflamed area.—*Cosmos.*

Instrument for Checking Secretions from Steno's Duct.—J. A. Chappell.—The instrument consists of a wire spring clamp, flat at the beaks. When applied in the mouth, one beak comes on the outside of the cheek and the other beak extends over the opening of the duct inside the mouth. Bibulous paper is placed between the beak of the instrument and the opening of the duct. Dr. Chappell claims this to be of great help to him in short operations, such as plastic fillings, keeping abutments for bridges dry, etc.—*Extract Cosmos.*

Method of Making All-Gold Crowns for Anterior Teeth.—W. G. Mason.—Select a natural tooth, the size and shape of the one to be crowned, invest it in plaster so as to expose one-half, then pour plaster over the other half, separate the plaster, leaving the tooth in one-half, pour Melotte's metal over this half, remove tooth to the other half of investment and pour Melotte's metal over this half; then stamp the two halves of the crown, and proceed as with the Hollingsworth system.—*Extract Cosmos.*

Swaging Machine for Backing Porcelain Facings.—J. R. Beach.—The instrument is made from two pieces of brass tubing about three-quarters inch in diameter, with guide pins on the upper half and grooves in the lower, to guide the two pieces in coming together when swaging. Both halves are filled nearly flush with modeling compound, allowing about enough space between them for a facing. The gold is cut the size to fit the facing, holes are punched, and then placed on the facing; this is then placed in the swager, and the two halves brought together by a blow on the upper half, and the gold is adapted perfectly to the facing.—*Extract Cosmos.*

DISINTEGRATION OF CEMENT.—J. E. HINKINS.—It is my opinion that if any derogatory chemical influence takes place in cement, it is produced by the same action and the same cause as in saliva.—*Extract Cosmos.*

TREATMENT OF NECROSIS OF THE MAXILLA.—F. B. JAMES.—In handling a case of necrosis no attempt should be made to remove the dead portions of bone until the sequestrum has separated from the healthy tissues. Good drainage should be obtained and the parts should be frequently and thoroughly washed out with a reliable antiseptic solution.

Hydrogen dioxide should be used with care unless there are good openings for the escape of the gas formed, otherwise it may happen that the periosteum will be torn from the healthy bone near by, thus enlarging the surface of the denuded area.

When the bone is carious all the affected part should be removed at once with the engine and burs, or with chisels and gouges. Every precaution should be used to keep the parts in a thoroughly antiseptic condition during the operation. The cavity in the bone should be packed with antiseptic gauze, which should be changed frequently, and will gradually fill up with new bone tissue providing the general health of the patient is good.—*Extract Cosmos.*

PLENTY OF TIME FOR BLEACHING.—A. R. MELENDY.—We should take more time in bleaching those teeth that are in conspicuous places, for a discolored tooth is quite as objectionable and unsightly as a large patch of gold.—*Extract Cosmos.*

CARE IN SOLDERING.—F. J. CAPON.—If a surplus of solder is used in soldering, it will cause porosity in the porcelain, which is detrimental to the strength, appearance, and finish of the crown. In all porcelain work the metal parts to be united should have absolute contact, and any surplus end of dowel or pin should be ground off and made round or void of sharp corners.—*Dominion Journal.*

A Temporary Crown.—F. J. Capon.—In order that the patient need not be subject to any temporary disfigurement, and to keep the gum from creeping over the edge of the root, a temporary crown can be quickly adjusted by putting a piece of screw-posting into the canal, having made a slot across the end of the screw for its easy removal. A Bonwill crown can be adjusted with temporary stopping, or a plate tooth can be used by bending the pins around the screw and pressing in cement or temporary stopping to fill up the palatal space.—*Dominion Journal.*

Illy Constructed Crowns.—F. J. Capon.—Too many crowns are made, whether gold or porcelain, that do not pretend to fill the interdental space, resulting in great annoyance to the wearer; and the poorly-fitting band which generally accompanies these carelessly made affairs adds still more to the discomfort of the poor victim by being a place of retention to fibers of food. The crown being straight-sided invites this compacting of food into its meshes, so that instead of having a beautiful pink gum tissue closely adherent to the necks of the artificial teeth, with circulation perfect, with physiological action complete, always protected by the pronounced over-arching which nature provides, the festoons of the gum become congested, the soft tissue by the engorgement sometimes fills the false space, no part of which can be touched without profuse bleeding; brushing becomes a painful task, is often neglected, and may even be abandoned. This manner of replacement tends to bring about finally a wholesale loss by disease, instead of meeting the original desire to save these useful organs.—*Dominion Journal.*

Polishing Crowns.—To prevent marring a gold crown when polishing, wet the inside of the crown with soap solution, fill it with modeling composition, and, while the latter is still soft, thrust the end of a stick or instrument-handle into it. When the crown is finished, soften the composition in warm water and remove.—*Dental Hints.*

Use Alcohol Instead of Water When Annealing.—

C. H. WORBOYS.—Gold or copper plate heated to redness and then dropped into alcohol, will be softer and cleaner than when water is used.—*Register.*

CEMENT MODEL FOR SEAMLESS CROWN.—C. H. WORBOYS.—In the construction of seamless crowns, the use of cement is preferable to plaster for the model, as it is stronger and can be polished after it is carved. A fine vent hole put through the model assures a perfect cast of it, when it is dipped into the hot metal.—*Register.*

ALUMINUM SOLDER AND FLUX.—C. H. WORBOYS.—Here is a formula for aluminum solder and flux:

R—Aluminum plate	6 parts.
Zinc	1 part.
Phosphor tin	3 parts.
Flux. Steric acid.	

This solder is very useful for strengthening seamless aluminum crowns to prevent their wearing through on the occlusal surfaces.—*Register.*

HEMICRANIA, OBTUNDENT FOR SENSITIVE DENTIN.—Hemicrania, a few grains; spts. nitrous ether, sufficient to make thin paste. Apply to cavity, which should be well dried, and seal up for a day or two, and upon excavation it will be found that tubuli have not been coagulated but have absorbed the hemicrania, and patient may sit and have cavity thoroughly excavated and have little or no pain. Absolute dryness when making application is a fundamental rule in using this combination.—*Exchange.*

MILK OF MAGNESIA AND PRECIPITATED CHALK COMPOUND.—E. H. RAYMOND.—I have had a compound of milk of magnesia and precipitated chalk, for erosions, made for me by the Charles H. Phillips Chemical Company, 128 Pearl street. It is made into a paste, and if applied with the finger around the necks of the teeth before retiring, it will be found to remain longer than any preparation yet tried.

A piece of muslin, or thin cloth, cut into narrow strips, on one side of which is spread the compound, if placed under the upper lip, will be found effectual in very "wet mouths." To be applied at night.—*Extract International.*

TREATMENT OF GUM MARGINS PRIOR TO APPLICATION OF RUBBER DAM.—MR. SIMMS.—In the case of upper incisors, which are unusually long, and where there is an absence of well-defined cingulum, the gum attachment is usually very thin, and the gum spatula is rather prolonged, so that in time the rubber dam or ligature has to be very deeply placed up the tooth, with very great pain to the patient. I have found, in these cases, a very good idea to first of all pass around the tooth a very thin probe or spatula, charged with pure carbolic acid, and rub right round the gum, using it somewhat sparingly. That seems to have a marvelous effect, and makes an operation, which would be otherwise painful, quite a bearable one, and during the two or three months I have been treating it in this way, no disadvantage has arisen. The same method can be applied in preparing roots for crowns; in fact, with more advantage and comfort to the patient, and also in placing a crown on a root after the crown is finished. In placing a finished crown on a root, carbolic can be best applied by smearing it inside the crown.—*Dental Record.*

NERVE DESTRUCTION BY ANESTHESIA.—DR. KIMBALL.—The tooth was one that could not readily be reached by a hypodermic syringe, but by closing the cavity with gutta-percha with the exception of a small opening I fitted to this opening a conical plug of soft rubber, through which I passed the needle of the hypodermic. By holding this plug very firmly in place with an instrument like a two-tined fork, I was able to close the opening so as to get a minim or so of a four per cent. solution of eucaine injected under strong pressure. There was immediate cessation of pain, although the tooth had been aching violently. I was then able to remove the pulp without pain. The same thing occurred this week in the case of an upper first molar. In these cases it is necessary to be pretty thorough in the operation, removing the pulp clear to the apical foramen, else there may be pain afterwards. In these cases I have mentioned relief from pain was immediate and final.—*Extract International.*

Use of Cork Between the Teeth While Malleting.—If you would have your patient thank you, use a piece of cork, trimmed square, between the teeth when inserting a gold filling. The impact of the mallet blows is less severe on a tooth thus supported by a cushion of cork.—*Dental Hints.*

Obtunding Sensitive Dentine with Silver Nitrate.—E. H. Raymond.—Add equal parts of powdered nitrate of silver and eucaine (or cocaine), and make into a paste with carbolic acid, and then place the above compound in it and seal it up with soft gutta-percha. I use an asbestos mat to carry the compound. There will be no pain from the application, as in the case of nitrate of silver alone, and you can excavate and fill without pain at a future sitting.

For supersensitive dentine it is the best thing I have ever used, as when properly manipulated not one particle of pain need be given from beginning to end of an operation.

I even use it in front teeth where cavities are accessible, cutting out the stain. A second application may be necessary in many cases after superficial decay is removed.—*Extract International.*

Cause of Fillings Failing at Cervical Margin.—Wm. Crenshaw.—The failure of cohesive gold at the cervical margin, to my mind, is inevitable, particularly if the margin be located in dentin or cementum.

The writer believes that in no small degree these failures are inaugurated at the time of making the filling, if malleting be done. We say this because, beneath the gold thus malleted down, the cementum, which is composed of nervous tissue and lime salts, must, it is reasonable to believe, have its structure crumbled or disintegrated. If this result obtains, it is only a question of time when the failure will become known.—*Extract Cosmos.*

Non-Cohesive Gold at Cervical Margins.—Wm. Crenshaw.—In using non-cohesive gold at the cervical margins in conjunction with the matrix and cavity management now offered, we do away with retaining pits and their evils and dangers. We do away with malleting directly upon the margin of unstable structure. We place on the *margin* a preparation of gold which, if not more compatible with its nature. is one which by test, in contact with dentin and cementum walls elsewhere, has longer and more surely preserved them intact.

We do away with the task of building with cohesive gold, against which in the perfected matrix we have a form giving the outline of the contour in the shape of a mold, which limits to a grain the amount of material and at the same time so confines the gold that the adaptation is rendered easy and certain.

Non-cohesive gold under these circumstances can be so perfectly condensed and settled in position that after being capped with the cohesive we have it so placed as to accomplish its greatest good; and the cohesive also where, with wall boundary of enamel, it is at its best.—*Extract Cosmos.*

ROOT TREATMENT.—A. C. SEARL.—I believe the cavity of approach should be thoroughly sealed after each treatment. Second, I believe in thorough cleanliness and perfect antiseptic methods. Third, for our success I believe much depends on the mechanical manipulation in cleansing the canals, but no attempt should be made to thoroughly cleanse the canals at the first sitting. I believe in praising the bridge that carries one safely over. Therefore, I offer these methods in the present paper, not that they contain any originality, but that they have proved highly satisfactory in my practice.—*Extract Review.*

ASEPTIC METHODS IN DENTISTRY.—A. C. SEARL.—In all our operations on the teeth, absolute cleanliness and aseptic methods should be employed. I have no sympathy for the operator nor confidence in a method, which does not require the use of the rubber dam for treatment. Whatever the treatment is, it must be thorough in every detail, in cleaning, drying and filling.—*Extract Review.*

FILL CROWN WITH CEMENT.—In setting shell crowns the crown should be filled with cement so as to prevent a vacuum and consequent impact of compressed air.—*Dental Hints.*

HINTS.—F. C. MILLER, Appleton, Wis.—A piece of baseplate wax placed over the pin of a Logan crown and heated slightly over the alcohol flame before forcing to position, will indicate the comparative sizes of the root and crown, and the imperfections of the adaptation.

Shellac your teeth before running the second ring of your flask and they will retain their positions when separating.

A knife-edged carborundum wheel, or disk, on the engine will sharpen your root facers in a few minutes.—*Dental Hints.*

METHOD OF MAKING A PORCELAIN CROWN.—L. PHILLIPS.—Cope made in usual manner, labial side of band made very thin; facing backed with pure gold or platinum and facing waxed in position with cope in place in mouth. Rope of pure gold laid around gingival margin of facing and then investment made and soldering done with 20 or 22 k. solder. Then crown polished, the labial side of band being ground very thin.—*Review.*

GOLD INLAY.—H. B. TILESTON.—Made gold inlay for disto-occlusal cavity of lower right second bicuspid. Cavity was prepared so matrix would draw easily, a bite was taken in modeling compound, the impression of the tooth containing the cavity was filled with copper amalgam, which is allowed to set over night. The bite was run full of plaster and placed on articulator. Gold foil was burnished into cavity in the amalgam model of the tooth, then another piece of foil was soldered to the matrix along the line where the matrix covered the gingival margin of the cavity. A small hole was made in matrix for the entrance of solder. Matrix was replaced in cavity and reburnished, then cavity was filled with pellets of cotton, over which was contoured the piece of foil, which had been soldered to the matrix, care being taken to get the contact point with the adjoining tooth, also to get the foil in contact with the margins of the matrix. Then all was removed, cotton burned out and solder to fill the space inserted. Inlay was then trimmed and set with Harvard cement.—*Review.*

EDITORIAL

DENTAL EXAMINATION FOR LIFE INSURANCE.

The Southern Branch of the National Dental Association is making an effort to have insurance companies add to the medical examination (which they require all applicants for insurance to undergo) a few leading questions pertaining to dentistry.

It is not uncommon to hear of a death due to pyemia or septicemia from abscessed teeth, or necrosis incident thereto.

Only recently a case of this sort came under the writer's observation: In a neighboring town a gentleman was troubled with an abscessed second inferior bicuspid. It refused to respond to treatment, and became so painful the dentist decided to extract, but owing to an exostosed condition of the root it broke off. All attempts to remove the piece of root at that time proved futile. It was removed, however, some days later, but necrosis of the jaw had set in. The patient was taken to a city hospital, where an oral surgeon operated on the necrosed portions of the jaw. In spite of all efforts to stay the disease, suppuration continued, involving the sub-maxillary glands, and the patient died of septicemia.

Miller and others have called attention to septic infection and poisoning from badly decayed teeth, gangrenous tooth pulps, pyorrhea alveolaris, and other oral diseases, and almost every observing dentist can probably add his testimony to cases of this sort.

But this is not all.

Dentists, by experiment, research and practical observation have shown that diseases of the teeth and mouth are indicative of graver constitutional disorders, such as malnutrition, tissue degeneration, etc., and that the study of not only the dental conditions, but of the oral fluids, is of great diagnostic value.

Dr. Kirk says: "The more I study the mouth conditions, associated with such disorders as malnutrition, especially those forms of malnutrition which precede grave forms of nephritis, arterial sclerosis, atheroma, etc., and those indicative of gout, and lithemia, the more I am convinced that the mouth conditions are the forerunners of graver lesions affecting the structure of many important organs, but particulaly of the grandular system, the kidneys, and the coats of the vascular vessels."

Why, then, should not the teeth and oral cavity receive attention in examination for life insurance? It seems to us that in furthering this undertaking the committee, of which Dr. C. L. Alexander is chairman, is doing a commendable work, and we hope it will prove successful.

SOCIETY

G. V. BLACK DENTAL CLUB OF ST. PAUL.

At the annual meeting of the G. V. Black Dental Club, of St. Paul, held at Austin, Minn., June 20, 1902, the following officers were elected for the ensuing year:

President, Dr. S. Bond, Anaka, Minn.; vice-president, Dr. J. M. Walls, St. Paul, Minn.; secretary and treasurer, Dr. Robert B. Wilson, St. Paul, Minn.; board of censors, Dr. A. C. Searl, Owatomia; Dr. G. F. Andrews, St. Paul; Dr. A. M. Lewis, Austin, Minn.

COMMENCEMENT.

The University of Michigan Dental College held its commencement Thursday, June 19th, and conferred the D.D.S. degree upon the following:

J. F. Allen, M. A. Anglim, C. C. Bowen, R. O. Butler, E. B. Caldwell, R. A. Calkin, J. R. Cannan, B.S., F. M. Capron, G. Chalmers, C. J. Colling, W. L. Crego, F. L. Cunningham, L. W. Curtis, P. L. Day, W. Dick, W. P. Finlan, P. L. Fritz, W. F. Gates, W. E. Haller, C. A. Hawley, C. B. Hayner, F. L. Hermann, H. L. Howver, M. E. Kearney, W. C. Kinietz, J. H. Kirby, S. M. Kirby, H. G. Kittell, A. B. Lawson, A. W. Lewis, C. J. Light, W. M. Lyle, G. M. Madden, S. A. Mercer, A. S. Moore, H. E. Neelands, A. J. Norman, L. F. Owen, H. O. Quackenbush, F. S. Randles, S. A. Randolph, O. Riemenschneider, E. G. Robbins, G. P. Saville, M. G. Skinner, A. G.

Smith, S. S. Smith, E. E. Snow, F. R. Snow, R. L. Spaulding, W. F. Spies, G. A. Stegeman, J. R. Stewart, E. F. Swinehart, C. G. Taylor, B.S., H. W. Tobias, F. Vandeburg, Ph.B., V. M. Van Fossen, O. C. Vogeli, M. L. Ward, L. G. Watkins, C. M. Welch, W. H. Weybright, J. C. Whatley, F. H. Wilkinson, F. E. Williams, A. C. Wilson, E. Zincke, R. W. Bunting.

AFTERMATH

PERSONAL AND MISCELLANY.

Appropriation for Suppressing Bogus Diploma Mills.—At the meeting of the Illinois State Dental Society in May, an appropriation of $1,500 was made to assist in the suppression of bogus diploma mills and the illegal traffic in dental degrees.

—Dr. H. L. Ambler, Cleveland, is spending a few months in California.

—Dr. N. B. Acheson, Youngstown, O., is rusticating in California.

—Dr. F. A. McAulay, formerly of Cleveland, O., is now located in Hermosilla, Sonora, Mexico.

Robert Chaffee Oliver, born May 1st, 1902, in Manila, P. I., to Dr. and Mrs. Robert T. Oliver, reads a card received from our friend, R. T., examining dental surgeon, U. S. army, located at Manila. Congratulations.

Ode to a Doctor —

The dentist cures our aches and ills,
And then, when we are better,
He sends around these little bills:
"To Dr. Cure 'em Dr."

But when tooth aches till he can't see,
He does so deftly stop 'er,
We surely must admit that we
Are Dr. to our Dr.

A FLOURISHING LOCAL DENTAL SOCIETY.—Every reputable dentist of Springfield, O., is a member of its local dental society, and during the past year instructive papers have been read and discussed at every meeting. An outing is one of the enjoyable features during the summer months. Its officers are: Dr. H. J. Bosart, president, and Dr. W. A. Barber, secretary and treasurer.

BIGGS—There goes a man who is approached with fear and trembling by all who have dealings with him. Boggs—Ah! a criminal judge or something of that sort, I presume? Biggs—No, a dentist.—*Tit-Bits.*

SCIENTIFICALLY EDUCATED DENTISTS.—"If the dentist of to-day is required to be a man with a scientific education, it becomes necessary to make college education compulsory. It is impossible for a man to go single-handed at the task of acquiring a manual and mental training, such as dentistry exacts from him to-day. The equipment of a good college is absolutely necessary to turn out men who can be reasonably relied on to do justice to the demands of modern dentistry."—*Dr. Hugo Franz.*

AMALGAM USED IN NEW SOUTH WALES.—According to statistics, the amount of amalgam alloy used in Sydney, N. S. W., alone exceeds 1,000 ounces per annum.

NEW STYLE TOOTH BRUSH.—Dr. Hamilton, of Boston, has devised a new tooth brush. His idea is that in many cases the gums are injured by brushing, and in order to obviate this he has devised this brush, which consists of alternate rows of bristles and badger hair, the hair being longer than the bristles, which serves to keep the hair from matting down. Dr. Hamilton feels that many cases of recession are due to too vigorous brushing, and he has seen much benefit by prescribing this brush.—*International.*

VENTILATION IN THE DENTAL OFFICE.—In order to obtain the best results from ventilation, it is necessary to have a current of fresh air supplied continually.

Frequently there is but one window from which to ventilate, which makes the problem all the more difficult. I think I have solved this to a great extent by a very simple device. The method is not original with me, but is an old idea which I obtained from a magazine and put into practice. I had a carpenter fit a piece of board about three inches wide and the exact width of the window, and had it stained to match the wood-work, with a weatherstrip tacked on top. Then by raising the window and slipping into place, and closing the window on it, I have the ventilation between the two sashes above, through which I am constantly receiving a current of fresh air without a direct draught either over myself or my patient.—*Extract International.*

The Scarcity of Platinum.—The history of platinum, which was discovered about the middle of the eighteenth century, differs from that of other rare metals in that the increased demand has not been met by repeated discoveries of new deposits. Hence the price of platinum has risen enormously. In 1822 platinum was worth $1,000 a pound, in 1870 $900, this slight decrease being due to the discovery of the Ural deposits in 1822. In 1895 the price per pound had risen to $2,700, and in December of last year to $4,800. Platinum was first found in South America and regarded as a variety of silver. Hence the name, from the Spanish *plata,* silver. It occurs as platinum dust in Colombia, Brazil, Hayti, and also in Borneo, but the Ural region is the chief source of supply. The annual output of the Ural mines is about 8,000 pounds, while the rest of the world furnishes only about 1,300 pounds. The mining of platinum has, therefore, been developed almost entirely in Russia, and a suspicion has arisen that the output is restricted purposely, in order to enhance the price; but this supposition seems to be without foundation. The Russian government, indeed, is said to be contemplating the recall of coins minted before 1850, which contain platinum, for the purpose of reclaiming the metal. Most of these coins, however, disappeared from circulation long ago, having been melted by chemists and technicians in search of platinum. If no new source is discovered, the scarcity of platinum will soon be felt seriously in many industries.

Filtered Water Dangerous.—Says Dr. A. L. Wood: "The domestic filter is a dangerous article of the worst description. People rely upon it in fancied security, while in ninety-nine cases out of every one hundred the water is more dangerous to health and life after passing through it than before. All soluble mineral salts and all impurities of every description, including the deadly poisons from disease germs, which are held in solution, pass through the very best filter at all times, as freely as the water itself, and, unless the filter is cleaned and sterilized several times a day, which is rarely if ever done, the germs of typhoid fever and other diseases multiply with great rapidity within the filter itself and pass through with the water. Many eminent chemists and scientists have testified to the truth of these statements."

Aluminum Welding Process.—At the last meeting of the New York Chemical Society a representative of the German Thermite Company gave an exhibit of one of the most interesting discoveries, or rather processes, of recent years. It was simply the enormous heating power of powdered aluminum when burned with some substance rich in oxygen. Its scientific value lies in the fact that by this means it is possible to obtain the highest temperatures yet reached by man, exceeding, it seems, the temperature of the electric arc. The practical value of the Goldschmidt process lies in the fact that it affords a portable supply of intense heat in any desired quantity, and that, for example, a boy can carry around a can of it and weld tramrails or broken steamer shafts, or other trifles, in place. All that is needful is to jacket the shaft or rail or whatsoever with the aluminum mixture, and touch it off with a match. So intense is the heat generated that a huge steel casting will melt to run like water in a few seconds, and the most refractory one turned to a liquid. The application of the process to the welding of street rails is, of course, but an incident, but it is a boon. By this means rails may be welded together as cheaply as put together by a common noisy joint. As the wheels then have no rail ends to hammer on, the ordinary jar of running is immensely reduced, and flat wheels become almost unknown. This system is already in successful use in Berlin, Dresden, Hamburg, and all the great German cities; it time that it should be introduced here, and it cannot come too soon.

SHUT YOUR MOUTH.—Shut your mouth. Breathe through your nose. Never allow yourself, unless positively necessary, to breathe through your mouth. The nose is made to breathe through. It is provided with hairs to sift the dust out of the air. It is provided with warming plates to temper the air (turbinated bones). It is provided with apparatus for furnishing moisture to the air. All of this is quite essential before the air is drawn into the lungs.

Breathe through the nose. Shut your mouth. Man is a talking animal. He talks so much he forgets how to breathe through his nose. In singing, also, it is impossible not to breathe through the mouth.

A good, brisk walk in the morning, compelling yourself to breathe through the nose, is an excellent hygienic practice. At first it will be difficult to do so. Persist in doing it, however. Think of it all day, whatever you are doing—shut you mouth. Breathe through your nose. Keep thinking about it until you have formed the habit. It requires quite an effort at first. Lazy people had better not try it. Some people are too lazy to breathe anyhow. They go around with their mouth open like a fish. Keep your mouth shut. Breathe through your nose.—*Medical Talk.*

COLD BATHS FOR HOT DAYS.—During the hot season all should, as far as possible, take some form of cold bath in the morning and evening; if the heat is very oppressive and prostration is threatened, one or more may be taken during the day. —*Good Health.*

THE DENTAL SUMMARY A FAVORITE WITH THE PROFESSION.—Several hundred new subscribers have been added to the subscription list of THE DENTAL SUMMARY during the past few weeks. The popularity of the journal is increasing and its general make-up and character are praised by dental practitioners everywhere.

Dr. L. P. Haskell, Chicago, writes: "I like The Dental Summary exceedingly. Its articles are brief and to the point. Brevity is your motto. Good!"

Dr. W. H. Steele, Hastings, Neb., writes: "I can candidly say that I think The Dental Summary the neatest, best arranged, and most practical dental journal published at this time, and I have had experience enough along this line to be a competent judge."

Dr. G. W. Cochran, Erie, Pa., writes: "Your Dental Summary is read with great interest every month. I consider it in many respects the best of the five different dental magazines I receive monthly. The superfluous material that is so common in most of our dental journals is eliminated by your able editing, thus giving your readers everything of importance in a concise form. I predict great success for The Dental Summary."

These are but samples of the many commendatory letters we are constantly receiving.

No progressive dentist can afford to be without The Dental Summary.

THE DENTAL SUMMARY

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CONTRIBUTIONS.

COMBATING PAIN IN DENTAL OPERATIONS.*

BY W. G. EBERSOLE, M.D., D.D.S., CLEVELAND, OHIO.

The greatest question of to-day before our profession should be how to prevent pain in our operations; all else should stand second to this. It is and has been the great question with the people, where can I get my teeth cared for without severe suffering? It is the one great cry of the laity. It is more than a cry; it is an ominous demand which must be met.

We have met it in the past by the statement of, "It cannot be done," and then proceeded with our fiendish torture, thinking of little else but the fee at the end. He who to-day says that it cannot be done and makes no effort to meet the question, seals his doom. Suffering humanity will stand this torture no longer. The people are fast learning that dentistry can be robbed of nearly all of the pain that it has been found necessary to inflict in the past. Learning this, they are seeking those who make use of the means which do away with all torture.

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*Read at Northern Ohio Dental Society, June, 1902.

The man who makes use of these means, if not busy now will soon find that he cannot care for all the patients demanding his services; but he who is busy to-day, be he ever so skilful, will, unless he adops these methods, find his practice gradually slipping away from him.

In my reference to pain in this article, I wish it understood that I do not refer to any one branch of dental work, *but to any and every act that may tend to cause pain.*

But some one wants to know at once, do you mean to say that you would sacrifice stability and reliability in the work rather than inflict pain?

If you cannot fill a tooth and save with one material, and save without inflicting pain, then fill and save with another, and you will save more teeth and have more patients bless you than is possible when you inflict pain. In other words, if I cannot thoroughly prepare for other fillings without inflicting pain, I would use cement and replace it from time to time, as the case requires.

The methods which I will hereafter describe are such that it will not be found necessary to make any sacrifice either in the quality of the material used or the thoroughness of the work.

I am a great believer in the manner of preparing cavities as described by Drs. Black and Johnson. The principle is correct and should be followed where possible, but, gentlemen, it must be done free from pain. If these men follow their own teachings and do not use pain preventing methods to prepare their cavities, I want to say that they are responsible for the loss of far more teeth than they save. They may save the teeth filled, but they, by the pain they inflict, cause the neglect of a much greater number of teeth.

These men, even though they may be considered extremists by some, are right as far as they have gone. If they can prepare all the cavities that they fill just as they describe and do it without torturing their patients, then, and then only, will I take off my hat to them and say: "You are right, you are right first, last and all the time; proceed with your extension for prevention." But just the moment that they fail to prevent pain, I am ready to cross swords with them, and then do I demand a halt.

From a very careful study of the question of pain I have learned that much of the pain is mild or intensified, just in proportion to the degree of anticipation which precedes it.

In the chair, I care not whether the pain be actual or imaginary, the patient suffers; in either case it must be overcome. Imaginary pain can be relieved by gaining the patient's confidence. This can only be done by most careful and studious avoidance of anything which will cause actual pain and by using the utmost care to teach your patient that under no circumstances will you deceive them.

When I place a new patient in the chair I make it a rule to never begin work until I have explained that if I am to do painless work for them I must have their hearty co-operation. I say to them that the moment I cause them the least particle of pain I want them to let me know. I do not want them to try to stand the least pain without making it known to me.

In combating pain in my dental and surgical operations I have divided the work into four classes:

First. That class which can be done by careful and conscientious manipulation.

Second. That class which will yield to topical application or local anaesthesia.

Third. That class which requires the use of the cataphoric apparatus.

Fourth. That class which requires the use of general anaesthesia.

Class Number One: Under this class comes examinations and all operations that can be done free from pain, such as the removal of leaking fillings, the preparation of many cavities which are not sensitive or can be thoroughly prepared without inflicting pain, the removal of tartar in some cases, cleaning the teeth and a few other minor operations.

Now under this class is where most men make a great mistake. They yield to the temptation to go just a little beyond the limit and inflict severe pain. If I say to a patient that I am not going to hurt him, I mean just what I say. If I am careful and they let me know when I hurt the least particle and I avoid a recurrence of it, it is but a few moments until I have the confidence of the patient and can proceed without fear of imaginary pain.

Class Number Two: Under this head comes all cases where the application of medicinal agents are necessary to the successful performance of painless operations. The agent that is used the most frequently here is cocaine. This is the drug that has done the most to make modern or painless dentistry possible. No drug has been used and abused more than this. In the practice of modern dentistry there is no single drug of so great value. By its use all operations, from the simple application of the rubber cloth to the cutting of sensitive dentine, the removal of exposed pulp or the removal of the tooth itself may be made entirely painless. In my practice I almost invariably have it applied to the gums before attempting to put on the rubber dam. This is done by one of my lady assistants.

The application is made in one of two ways, depending upon the nature of the work to be done. If it is a simple case, then the assistant bathes the gums with an aqueous solution for a few moments prior to the time the rubber is applied. (The strength of the solution immaterial.)

If the case is one in which the gums are very sensitive or one in which the gum must be forced out of the cavity or where the cavity is at the gingival margin and the gum must be forced back to permit the proper insulation, or if a root is to be cut down beneath the gingival margin, a band to be fitted or a bridge to be set, then the mouth is packed and the parts kept dry, by the use of cotton rolls, and the gums bathed for several minutes prior to attempting the operation. Properly prepared and applied, there will be little complaint of disagreeable tastes or unpleasant feelings. If after applying the rubber I find that I have an exposed pulp I then use the Funk System, which consists of taking a piece of spunk saturated with a solution of cocaine, and placing into the cavity over which I place a piece of unvulcanized rubber sufficiently large to completely seal the cavity.

Then with round pointed instruments I make sufficient pressure to force the cocaine solution into the pulp chamber and root canal, using great care not to cause pain, gradually increasing the pressure until all sensation ceases. I then remove the contents of the chamber and canal.

If I find a very sensitive cavity and not an exposure, I then proceed to use cocaine from a cataphoric standpoint. On the other hand, if it is a case of pyorrhea alveolaris to treat, bathe the gums with a solution of cocaine, take a broach, and wind a few fibres of cotton around it and crowd the solution into the pockets, letting it remain there, or make a new application until the scalers can be used without causing suffering.

If it is simply a case of removing salivary calculus and the gums are sensitive, apply your cocaine solution. If there is a bridge to be set, a band to be fitted or root to be ground down, pack the mouth and apply your cocaine solution until the gums are thoroughly benumbed, when you may proceed without inflicting pain.

If there is a tooth to be removed and you have not an apparatus for giving nitrous oxide gas, then inject the cocaine solution around the offender and after a few moments' time remove it.

So much has been said and written in regard to the use of the hypodermic needle that we refrain from discussing it here.

Class Number Three: This class requires cataphoresis. It is here that I want to say that cataphoresis properly and intelligently used is a success. For several years two or three of us in Cleveland have been making the same statement, time and time again, only to be laughed at and twitted by many of our fellow members of the dental profession. They accuse us of "fooling" the people. They were invited to have their teeth prepared for filling by cataphoresis, but they said that they had given it a thorough test and found it unreliable and impractical.

They, however, found that the people liked to be "fooled."

A clinic was arranged and given before the members of the Cleveland Dental Society with two of the most skeptical and positive opposing members of the society as patients. The results were such that these men declared before the society that cataphoresis was a success, and that henceforth they would use it in their practice.

They are using it, and not only they but quite a number of others are using it. These men are present, and I trust they will lend their statements in support of my claims for a method which had almost been discarded.

All failures of the past have been due to two things: First, the lack of proper apparatus; and second, the lack of proper application or the use of such instruments as were at hand. Until the past six months there has been no first-class cataphoric outfit to be had.

Those of us who have succeeded in the past have done so only by selecting some of the best parts of a few of the outfits on the market and adding thereto a special cell selector. The only cataphoric outfit on the market to-day that is suited to the needs of the dentist is an outcome of the clinic mentioned above, which led quite a number of the profession to insist that Dr. Weston A. Price of this city have an outfit built that would meet perfectly the needs of the dental profession. This is the first and only apparatus that has been built that thoroughly meets the requirements of the profession, and yet is simple enough that any one can handle it. Through its use cataphoresis is sure to come into universal use.

I wish to say, however, that there is no cavity so sensitive, and none so inaccessible that it cannot be prepared painlessly by the use of cataphoresis, provided the tooth or cavity can be thoroughly insulated.

In addition to this statement I wish to say that there are very few cavities that cannot be insulated. There are many cavities that are very difficult to properly insulate, and yet a careful study of the subject makes it possible to secure perfect insulation in almost all cases. Without perfect insulation, cataphoresis, in obtunding of sensitive dentine, is an impossibility. The first step in insulating is the application of the rubber cloth, which is indispensable. In ordinary cavities, that is, a cavity which does not extend below the gingival margin, after applying the rubber as for any other work, cleansing the teeth with alcohol and drying with warm air, and after opening up the cavity and removing the loose decay, I take a second piece of rubber about an inch or two inches square and punch a hole in the center, put it over the tooth which I am preparing to obtund, making a double rubber over that tooth. If there is no metallic filling in the tooth I am ready for cataphoric application. If there is gold, tin or amalgam filling in the tooth this must be insulated. This is done by covering it over with either chloro-percha or sandarac varnish. Great care must be used not to let the insulated liquid flow over the sensitive cavity. If this cannot be done otherwise, then fill the cavity with gutta-percha and flow over the insulating liquid. After evaporating the chloroform or alcohol thoroughly, remove the gutta-percha and you are ready for cataphoresis.

If the cavity to be prepared is one that extends below the free margin of the gums, and I can force the gum out of the way sufficiently by the use of ligature or clamps, etc., after placing the first rubber I fill the cavity with gutta-percha and flow the insulating liquid thoroughly over the clamp and around the gingival margin and the adjoining teeth, and then remove the gutta-percha filling and proceed.

If the cavity is one that I cannot apply the rubber so as to get it below the margin of the cavity and I can by packing the mouth and the use of escharotics and cauterizing agents keep the cavity dry a short time, I fill the cavity part full of gutta-percha and complete the filling with cement, using care that there is sufficient cement at the base to withstand the strain of clamps or ligatures, as the case may be.

When cement is hard, apply rubber, remove part of the cement and scoop out the gutta-percha—when we are ready for cataphoresis.

For further instructions in methods of handling cataphoresis, I must refer you to Dr. Price's paper on "The Technique of Applying Cataphoresis Successfully to Dentistry."

I only wish to say that cataphoresis is positively reliable and absolutely safe if properly and intelligently handled.

Class Number Four: Under this head comes many of the operations which it is not possible to perform painlessly under other heads, or if possible under them, can be accomplished quicker and safer through the use of general anesthetics.

General anaesthesia has been in the past and is being to-day used in the performing of most of the dental operations where pain is considered; chloroform, ether and nitrous oxide gas being used. Of the two former I shall say nothing, except that I rarely use them, even in my surgical work.

In almost all of my surgical cases and in many of my dental operations I use nitrous oxide gas. Nitrous oxide gas is third only in importance when considering painless dentistry. Indeed, it is only through the three, cocaine, electricity (as used cataphorically) and nitrous oxide gas, that painless dentistry is made possible.

By the use of nitrous oxide gas about all dental operations can be made painless, but for most of the work it is harder to handle and more difficult to work under than either cocaine or cataphoresis. There are several methods and manners of administering it, but there are only three of which I shall speak:

Nitrous oxide pure; nitrous oxide, and oxygen pure or procured from the air and nitrous oxide by the open method.

In my practice I nearly always use the nitrous oxide and oxygen obtained from the air, and use it in almost all surgical cases. I use it in extracting teeth, opening abscesses, exposing pulps, operating upon the antrum, removing impacted third molar and every other operation that can be quickly performed or performed at different intervals by a number of administrations. I have administered it as often as five times at one sitting and delivered the patient in a better condition than if I had given either chloroform or ether.

The open method consists in the administering of nitrous oxide gas in the form of a spray or jet of the gas being turned over the face or into the mouth, and is inhaled by the patient.

The amount of the air and nitrous oxide inhaled depends upon the size and force of the jet of nitrous oxide. The gas, being heavier than the air, is not disturbed by it. This is the most difficult method of administering and the least reliable; but with proper application and some experience teeth may be extracted, surgical operations on the mouth performed, sensitive cavities thoroughly prepared free from pain, and the patient delivered in good condition.

I had hoped to present an apparatus at this time showing methods and manners of manipulation, but have been disappointed in having it completed. The open method is a very expensive one and should only be used when painless operations cannot be performed by one of the other methods.

Now as to the administration of nitrous oxide, I wish to say that there is no anaesthetic, either local or general, that can be given with so much safety in all cases, and that it is safer to give it in any and all cases than to perform operations causing pain without its use.

Now, in conclusion, let me say that "Combating pain in dental operations" is my hobby. I have ridden it some time and it has served me so well that I want others to receive the same service. I want humanitarianism followed in dental practice by all. To obtain it there are three vital questions to be settled: First, the means for preventing pain; second, the reliability and durability of the work, and third, the proper compensation for the efforts put forth.

Of the first question I have written at length; of the second I have only to say that if a man can do good work following the old methods, he can do much better work following the new; of the third question, that of compensation, I feel that I must say a word before concluding.

The extra time consumed by the methods I have suggested demand it here.

Recently I have frequently heard bitter complaints by the dentists about the small fees that we can command for our services; on the other hand, I have heard even more bitter complaints on the part of the patient against the pain inflicted by the dentist.

Is it not a wise plan to seek to correct both faults by a fair exchange, the dentist treating the patient by the most humanitarian methods and the patient in turn paying a far more lucrative fee?

We will have dentists argue that people cannot be treated with less pain than they inflict, and again others will say that people will not pay prices to justify giving them the required amount of time. There are always those to be found who say that it cannot be done, and again, those who claim that others will not do thus and so. To this class of men I simply want to say, try it, do your part and then see what others will do.

It is not our purpose or intention to discuss the fee question. We simply refer to it in this connection to prove to our hesitating brother that he will be fully compensated for the efforts he puts forth to prevent pain.

It has been proven beyond any doubt in the mind of the writer that people will not only gladly pay for painless work, but willingly pay a good round price for it. All I ask is, try it, and see what the people will do.

PAIN.*

BY W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, OHIO.

Were it not for pain, dentistry would never have become a professional pursuit; it would have attained only a high degree of mechanics. Dentistry on the other hand has now arisen to a scientific art in alleviating pain, and in supplying dental organs for the economy of the body. Pain, without doubt, is a useful element to give warning of and against disease, and abuse of the body, and has therefore utilitarian purposes besides its ordinary sensitivity. Pain teaches us how we grow and for what purposes the nervous system is constructed. Pain is a relative term, denoting an abhorrence in the one case of misery, and in the other it may denote pleasure; in certain neurasthenics "pain-joy" is noted; thus pain for one is only amusement for another. Spencer says: "The common assumption is that equal bodily injuries excite equal pains. But this is a mistake. Pulling out a tooth, or cutting off a limb, gives to different persons widely different amounts of suffering; not the endurance only, but the feeling to be endured varies greatly; and the variation largely depends on the degree of nervous development. This is well shown by the great insensibility of idiots—blows, cuts and injuries, extremes of heat and cold, being borne by them with indifference. The relation thus shown in the most marked manner, where the development of the central nervous system is abnormally low, namely, among the inferior races of men. Many travelers have commented on the strange callousness shown by savages who have been mangled in battle or by accident; and surgeons in India say that wounds and operations are better borne by natives than Europeans. Further, there comes the converse fact that among the higher types of men, larger brained and more sensitive to pain than the lower, the most sensitive are those whose nervous developments, as shown by their mental powers, are the highest; part of the evidence being the relative intolerance of disagreeable sensations common among men of genius, and the general irritability characteristic of them." It is difficult to establish a definition of pain. To do this would require the harmonization of the different nervous systems of individuals. My friend, Dr. Charles P. Pruyn, of Chicago, in an admirable paper on this topic, gives a definition which is fully expressive, i. e., "Pain, an exalted sensation of a nervous function perverted." To say that we have pain is to express unusual feeling, which varies with the size of the organism, with the character of its nervous system, and also with the temporary states of the part affected, of the body at large, and the nervous centers. Pain is produced by a stimulus greater than is customary, and it is only by comparison with the other senses that have learned to recognize it as a distinct sense. That there is a "pain sense" is as yet in some dispute, so one cannot definitely say that it is comparable to the "temperature sense," "pressure sense," etc.

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*Read at Northern Ohio Dental Society, June, 1902.

As our program to-day has called for an exposition of the treatment of pain, it leaves me therefore to attempt to say something about what pain is supposed to be.

Having given some conception of the relations of pain, let us now turn to a short life-history of an individual. Life principles have been handed down to us through the means of a fine material known as germ-plasm, which looks the same for the future human being as for the animal which has apparently no mind and perhaps no eyes, ears, or mouth, or any special sense organ in fact. In this minute plasm are all the primitive elements that will eventually become a living organism, and from which the various tissues will arise. Suppose now that the new organism is to become an insect. In that case perhaps it will have a crustaceous outer covering, long legs covered with the same material, and "feelers" which are long outstretched arms that are used for learning what is before the animal for food, and in the case of arthropods the antennae probably serve for smelling. The life of such an animal is short. Its purposes are perhaps in one instance a scavenger of filth, in another as food for larger animals. We find, however, that although it is possessed of limited capacities, it has feeling.' All animals have feeling or sensitiveness, no matter how small the animal may be. It may possess a nervous system which consists of only a few ganglia and a few filaments of nervous matter attached, or, arising in the scale of the animal kingdom, the nervous system becomes a really complicated system. In the small organism the feeling is limited, for sometimes the loss of a limb or a fraction of the body evidently does not produce shock resulting in death, as we would find in a higher animal that is unattended by surgical interference. We have thus learned to know that, proportionately as the nervous system is developed, sensitiveness occurs, and that the nervous system is the element for conducting impulses. Man by reason of his higher organization is subject to all the influences that tend to produce exalted sensations. His brain and spinal cord, which form the central nervous body from which all nerves are received and given off, is the highest organization of the kind in the whole animal kingdom. How do we know this?

By comparative studies involving physiologic and pathological experimentation, which involves also psychologic researches. There is a mentality that, awakened by the periods of growth and experience of an individual, teaches our brain to observe impressions, and, in reality, the impressions are in the brain. The new-born babe is affected by light, but does not perceive moving objects. The child is thus affected until the sense of feeling is co-ordinated with sight. Now, if the body and its nervous system would continue to grow and become strengthened in all degrees proportionately to external influences about it, then pain, or unusual sensations about our present bodily condition, would be *nil.* However, such is not the case, and therefore the *equilibrium* between the living and living, and, the living and exterior forces, being unequal, there comes dissimilarity of activities and painful impressions called pain often result.

Eckley states that pain may be considered as an "intangible and imponderable projectile," because pain follows nerve continuity, it does not switch off to other tissues.

"As a projectile, pain follows (1) the line of greatest traction; (2) the point of least resistance; (3) the resultant of the two, not simply because it is pain, but because it is a projectile; and projectiles—great and small, ponderable and imponderable—observe this law of physics."

We, as dentists, are concerned in dental pain, which is generally odontalgia, the result of pulpitis. This pain may be aggravated in its character and often described as "stabbing," "darting," "tearing," "ripping," etc., which is dominated as neuralgia. Neuralgia is always a symptom, although often confused with neuralgic affections. For instance, neuritis of the trifacial may occur and neuralgia be only one of its symptoms, or, neuralgia may result in a neuritis of the nerve which is affected. Cases of neuralgia may thus be confounded with neuritis, and vice versa. The distinction depends upon the darting pains in their character and the painful points of Valleix. Muscular wasting or electrical changes and altered reflexes demonstrate neuritis. Peripheral nerves are subject to every grade of inflammatory action, and especially the fifth pair of cranial nerves are frequently disturbed. Of all varieties of neuralgia that which arises in the trifacial is the most important. This neuralgia is as a rule unilateral. It is often persistent and intractable. By its association with other cranial nerves sometimes reflex action produces grave pain.

To study pain, gentlemen, is to enquire into the anatomical situation, the function, and how it is perverted. Is this disturbance a chemical one, in which the chemical elements in the tissues are in rearranging their atoms greatly disturbed? Is it an onward movement, as a wave of the molecules composing the nerve through which the impulse is conveyed? Is it an expression of a perception, and what or how may mind travel? Is it electricity? Who knows? That is what scientists are trying to discover.

THE TECHNIQUE OF APPLYING CATAPHORESIS SUCCESSFULLY.*

BY WESTON A. PRICE, D.D.S., CLEVELAND, OHIO.

Like the reign of a "Sphere of Influence" in the ever-changing history of nations, cataphoresis in dentistry came like a rush for an Elderado, and then almost as suddenly ceased to be used by the majority of the profession, but as truth always does, it has survived. While a few operators have used it with almost universal success, the great majority of the profession have as signally failed. Why has it been so? That an electric current will carry the alkaloid of cocaine into all tooth structures, except enamel, is as much of a truism to-day as the laws of gravity or chemistry or physics, and not one failure that has occurred has been because the current would not carry cocaine into the tooth. I believe practically every failure to produce anesthesia in tooth structure with cataphoresis with the hydro-chlorate of cocaine has been caused by one of the following four reasons:

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*Read before the Northern Ohio Dental Society, June, 1902.

1st. THE CURRENT NOT GOING THROUGH THE PART TO BE ANESTHETIZED (having to do with the insulation.)

2nd. THE APPLICATION ITSELF PRODUCING PAIN (having to do with the controller and method of applying).

3rd. THE ELECTRO-CHEMICAL ARRANGEMENT BEING WRONG (by reversed current, or faulty solution in cavity, or soluable electrode, etc.).

4th. THE TISSUES BEING IMMUNE TO THE ACTION OF THE ANESTHETIC (either true immunity or degenerated or suppurating pulp tissue).

The last is the least, and the first and second the most common causes of failure. The subject is too large for an exhaustive treatment in a short paper, so I will hurriedly take up the principal points.

The electric current invariably seeks the path of least resistance. It would go to the moon and back on a trolley wire rather than go a small fraction of an inch through gutta-percha. The great majority of operators have not realized that the resistance through the tooth they wish to anesthetize was tens of thousands if not hundreds of thousands of ohms, while to the gums between the moist rubber and the tooth it is only a few ohms, often not ten. This would apply also to a metal filling or the clamp touching the gum. To make the current go through the tooth the resistance through other possible paths must be literally millions of ohms, and usually this can only be accomplished by applying some good non-conductor, like chloro-percha, gutta-percha, rubber, cement or sandarac, etc.

More failures have been caused by the inadequate apparatus than from all other causes. Without an exception to my knowledge the qualities of the apparatus available have been more nearly those of machinery for mechanics and not arts than the qualities required for this most delicate operation on tissue so sensitive that it will respond with pain to sudden increases of a current only one millionth of that required to ring an ordinary door bell. A satisfactory outfit will allow the current to be increased in steps less than the above with measuring instruments that will clearly show this small current. The majority of the cataphoric outfits available would increase the current in steps which were hundreds and sometimes thousands of times too great. If the current passing through a tooth is increased gradually enough, it will produce a mild sensation long before it could be called pain, though the amount of increase covering this whole range may be only from a few millionths to a few hundredths of thousandths of an ampere. The majority of apparatus will pass over very many times this amount of current in one step, so the first sensation is sharp shooting pain instead of a very mild sensation like warm air in the tooth. In cataphoresis we are dealing with millionths of amperes instead of thousandths, as most have thought, and no suitable instrument for measuring these amounts have heretofore been available.

To make a satisfactory application of cataphoresis we must have instruments with the above requirements and qualities. In making the application, start by seeing that all the resistance is turned in, and the circuit is open, preferably by having no cells turned in. Apply the rubber cloth in every instance and dry it thoroughly, and make a barrier to the current in every direction except where you wish it to go, either with chlora-percha or gutta-percha or other suitable non-conductor. It is usually wise to ligature the tooth involved to prevent the rubber being easily stretched away from the neck of the tooth. If there are other fillings in the teeth to which the current may go take a piece of rubber cloth, say one inch square, and punch a hole in it and slip it over the tooth in question. Remember enamel is the only structure of the tooth that the current will not flow through more or less easily. If the cavity to be anesthetized has not sufficient retaining form to hold a pledget of cotton, as buccal cavities often are, make a wall of gutta-percha, or stopping, sticking it warm against the tooth or on the clamp. Remove all the food and debris and decay you can, because the cocaine will pass almost as slowly through it as through the dentin. Never hold the electrode in the tooth yourself nor have your assistant do it; use a very light, flexible, fine platinum wire electrode, the end of which will be rolled with pledget of cotton and packed into the cavity. Why platinum? Because the negative ion in this case is chloride, which goes to the positive pole, and if it can will unite with it, forming a chloride of that metal, which salt will at once go into solution and will at once take up the work of carrying the current, and because of its being a much smaller molecule will soon do the major part of the carrying of the current into the tooth instead of the cocaine. In this way thousands of failures have occurred by using German silver or copper or any metal that would form its chloride.

A solution of cocaine is easily broken up and the alkaloid destroyed by heating. It should never be heated much above a hundred degrees, and very many failures have been caused by over-heating, as by passing it through the flame, etc.

Be sure the negative electrode, preferably a sponge, has plenty of surface and is placed where it will not be disturbed, else it becomes a source of shock by carrying the contact. To prevent the positive electrode (which should be insulated), which is in the tooth, from being disturbing pass it under the rubber cloth-holder before attaching the connecting cord. Turn on the current very carefully, starting with one cell and gradually turn out the resistance until it is all out, or until the patient feels the slight sensation like very mild warmth or cold, as the sensation may seem to them. If you do not reach this point with one cell, turn in all the resistance again and add another cell having the circuit open at the time. After the point of sensation is found you have by the mil-ammeter the index to the tooth and you can easily avoid all possibility of the least shock, that is, of course, provided you have a suitable cataphoric outfit.

When you have found the pain limit retreat just a little until the patient cannot feel the slight sensation just referred to. You will see by the mil-ammeter that usually diminishing the current by the one-millionth part of an ampere will remove this slight sensation. If possible, arrange your work so that while waiting for the cataphoric process you can be making some other operation in the mouth, as filling another cavity, thereby saving to yourself and the patient the time while waiting for anesthesia, which will be from ten to thirty minutes. If your other operation is not completed in that time no harm will be done by leaving the current going, provided a little moisture is added every fifteen minutes or so, according to size of the cavity, to prevent the application from drying out. By a little foresight an operator can complete all the work in the mouth with a minimum of lost time, and a minimum of pain in the preparation of cavities.

The time required is the only objection or drawback, and in this way it amounts to almost nothing, in fact, time is usually saved because the operator can go ahead and prepare the cavity so much more rapidly. The current should be increased about every three or five minutes, always retreating just a little when the patient feels the slightest sensation.

There are many cases that are difficult to insulate, as the cervical margin of proximal cavities. If possible, get the rubber cloth beneath this margin and flow chloro-percha over it. Or make a barrier with gutta-percha, packing it so as to cut off all possible moisture. If you cannot do better, dry out the cavity and pack it full of gutta-percha or stopping and drill a hole through it to the sensitive tissue over the pulp chamber and make application through this opening and anesthetize the whole pulp. This is easily accomplished. In all cases, since the current takes the path of least resistance, the part of the cavity toward the pulp will be the first anesthetized, and the other parts, as the dentin beneath the enamel of the occlusial surface, the last. This can be anesthetized in two ways, namely, by anesthetizing the pulp, thereby also the whole tooth, or by covering up the prepared surface over the pulp with a non-conductor, as gutta-percha, and forcing the current through the more resistant parts. Cases of erosion are usually difficult, both because of their high resistance and because of their shallow saucer-shaped cavities. Place a small piece of dry cotton on the surface and flow cement over it. Then puncture through the cement to the dry cotton and flow in the cocaine solution and pack into the opening the flexible positive electrode.

Very much misunderstanding has prevailed regarding the per cent. and kind of solution to use. A saturated solution of the hydro-chlorate of cocaine in distilled water is probably the best. The purity of the solvent is of the greatest importance, otherwise the impurities themselves, as vegetable matter, are decomposed by the current and become the chief carrier of it. No difference would be found in the results in using a saturated solution of cocaine or a two per cent., except that the two per cent. would very soon become a one per cent. and soon there would be no cocaine left to carry the current. It is only that part of the dissolved salt whose molecules have split up into positive and negative ions that enters into the carrying and migration, and this is only a fraction of one per cent., but as fast as these are used up new molecules split up, thereby lowering the per cent. of saturation. When the hydro-chlorate of cocaine in solution—$C_{17}H_{21}NO_4HCl$—breaks up the chlorine forms the negative ion which goes to the positive pole, and the alkoloid, ordinarily quite unstable, except when combined as a salt, is the negative ion and travels toward the negative pole. The amount carried is in direct proportion to the amount of current used. Great care should be exercised not to heat the solution of hydro-chlorate much above blood temperature, for it is very easily broken down and the results will be failure. If the application is left running for considerable time, as when making an extended operaion elsewhere, a little fresh distilled water should be applied about every twenty minutes, according to the size of the cavity, to keep the cotton from drying out both from the warmth and electro-chemical action.

When operating on two cavities at once frequently one will be perfectly anesthetized and the other not. This is usually due to the fact that one tooth has very much lower resistance than the other, thus allowing more current to pass. The relative amounts are universally in proportion to the resistance. In such a case prepare the cavity that is anesthetized and fill it with gutta-percha or stopping, and then proceed with the other. It will often be found when removing pulps with this method that in a tooth with more than one root the pulp may be removed painlessly from one root but not from another. This will be due to the greater resistance of one canal than other or others, and the quickest method is to remove the pulp from the root that is anesthetized and place some gutta-percha over it or cotton with chloro-percha or sandarac and reapply or use the pressure method for the other root. Sometimes the resistance through the apex will be so great that the current will mostly go to the gum through the pulp chamber walls, thus making it difficult to anesthetize the apex. This is not frequent, however.

One of the greatest requisites for success is to be able to recognize faulty insulation or leakage of current. That is impossible without a good *and a very good mil-ammeter,* one that can be read easily in hundredths or thousandths of amperes. Much assistance will come from experience and a knowledge of the usual conditions, and this can be most easily ascertained by keeping a record of cases. If you have a faulty insulation, the mil-ammeter will probably read many times as much current as you should expect in that cavity with the voltage you are using, and this means that the resistance of the path is abnormally low, and the probability is that most of the current is not going through the tooth, but to the gum or the clamp or a filling, etc. If you suspect the clamp sometimes you can prove it by touching the clamp directly with the electrode and observing the reading with the same voltage. This is the most probable cause of failure (the insulation), and the operator must study his cases to get to know what would be a reasonable current for each particular cavity. The pain produced by too much current is usually at the apical foramen, and is generally heat. Overcoming the resistance in a small foramen will raise the temperature in it several degrees. Great damage was done occasionally without the use of a mil-ammeter by using too much current in a tooth after it became anesthetized. That is not more pardonable than for a physician to give a dose of morphine ten times too great. It is just as easy to measure the dosage of current as the dosage of morphine. Never use more than three or four-tenths of a mil-ampere of current if you expect the pulp to be kept alive. This amount will be perfectly safe, but twice this amount will not and three or four times as much, which you might frequently be able to use, would be almost certain to do mischief. If you expect to remove the pulp you might safely use one mil-ampere but not more for fear of setting up an inflammation about the apex.

I should take up the probable sources of producing shock to the patient, but with a satisfactory outfit, properly managed, this is practically impossible. Use a very flexible positive electrode and be sure to never turn on another cell without first turning in the resistance.

I am asked how I know how much heat may be generated in the apical foramen of a tooth. It is a law of electricity that "in any circuit or any part of any circuit the heat generated is equal to the square of the current or amperage, multiplied by the resistance multiplied by 0.236 equals the degrees centegrade rise in temperature, which will amount to a rise of several degrees in the dentin and in the apical foramen in an ordinary tooth. However, it is not essential that we know where and how the pain limit is determined so long as we do not encroach upon it, which we do not need to do. For those desiring the detail of this determination I refer you to a paper read by me before the Second District Dental Society of New York, in Brooklyn, January, 1898. See *Item of Interest,* March, 1898. I have been mildly criticised in the discussion for not using more simple language. I wish it were possible to convey electrical ideas without using electrical terms, but it is quite as impossible as to explain astronomy or histology or algebra without using the terms which alone express the ideas involved. I have tried to be as plain and simple in my language as possible, but the members of the profession have certainly to acquaint themselves, and that very early, or they will be ashamed to acknowledge that a very plain talk is "going over their heads."

PRESIDENT'S ADDRESS.*

BY F. W. KNOWLTON, D.D.S., AKRON, OHIO.

In welcoming you to this, the Forty-third Annual Meeting of the Northern Ohio Dental Association, I take the opportunity to again thank this society, not only for the honor you have conferred by electing me to the presidency, but for the many benefits and pleasures which have come to me in the past through membership in this association, and in my desire to maintain the high standard of my predecessors, I ask your kind indulgence to the end that this meeting may result in great good to those who so freely give their time and attention to these sessions, and that the cause of dentistry in general may be advanced.

The few thoughts herein contained are not by way of recommendations, neither of things new, nevertheless, of vital importance.

The *high ideals* which dentistry so nobly aspires to can unquestionably be attained only by way of educational processes continually working through the different avenues. The glorious advances made by our dental colleges are sufficient evidence of the possibilities, if we but improve our opportunities in all directions as well. The college life should be such as to instill into the hearts of the students a manifest disposition to professional progress and integrity, but there is evident need for a greater implanting and subsequent cultivation of the professional spirit to such extent that all may believe in and daily live such principles. Our hearts should go out in sympathy and with solicitude for the young graduate, for commercialism under the guise of professional acumen is continually presenting apparent allurements, which involve principles utterly incompatible with true professional success.

The possibilities of modern dentistry by way of progress and conscientious attention to details has inspired a confidence with the public, commensurate with the responsibilities and justly worthy of being carefully guarded and relieved from the misapplied judgment and debauched ability which inevitably follows, whether consciously or otherwise, when financial advancement is uppermost in the mind of the non-professional, impelling him as it does to the exclusion of other and higher motives.

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*Read at Northern Ohio Dental Society, June, 1902.

We, as a profession, are in a position to know these things, and our responsibility to the public and the profession alike calls for constant and well-directed efforts to the end that such undesirable features of practice may be reduced to a minimum.

Earnest personal work on the part of every one identified with dental societies is much needed in order that a spirit of enthusiasm and patriotism may manifest itself in the hearts of the new members entering the profession.

No man can develop himself to the full measure of his capacity without such attributes and membership in and loyalty to dental societies, together with the perusal of current dental literature, are habits absolutely necessary as conducive to such ends. Publicity is the light to the public mind and its application to our profession as regards dental societies, their motives and doings, and the principles involved in an honorable and legitimate practice, would undoubtedly result in a greater moral support of the masses, and prove of mutual benefit in hastening some of the ends sought.

Why should we be content to allow the larger share of information imparted to the public to emanate from the dental parlors?

Progress in dentistry tends to further advances along lines other than those of manipulative ability alone, and will necessarily call for a keener appreciation of the obligations of operator to patient than those ordinarily displayed when practiced as a mechanical art.

The state committee on dental legislation after hard and persistent efforts have met with success and our new dental law, while not all that was hoped to be accomplished, bids fair to relieve the profession of some of its shortcomings and give the public greater protection against imposters and incompetents.

I trust the several committees will be prepared to report on business of interest in their line.

In closing, I want to thank the executive committee, who in placing before us this excellent program, have worked hard and faithfully in the interests of this meeting, together with others who have contributed to its success, and it remains for the members through regular and prompt attendance and participation to show their appreciation not only to the committees, but to those who so cheerfully responded to their call.

It is a sad reflection that so many who choose a profession as their life work are content to remain, so far as any outward disposition on their part, wholly oblivious to any feeling of duty or obligation, when in fact all are beneficiaries of those who through their generous and untiring efforts have constantly striven to assist and forward our cause and humanity's interests.

This society is honored with a full quota of those whose records are a stimulus to future ambitions and the profession in this district should delight in maintaining its record for usefulness and progress.

NEW SWAGING DEVICE AND THE MAKING OF METAL PLATES.

BY O. H. SIMPSON, D.D.S., DODGE CITY, KAN.

Less than a dozen years ago there was no call for crown and bridge-work, and it was predicted by four-fifths of the men then in practice that it would never be used extensively, as only the rich could afford it. The dental profession has so educated the public that people of limited means to-day think nothing of having a mouth full of teeth that cost ten dollars a tooth and upwards. The public is ever ready to pay the shop-keeper's price for the correct thing; their doctor's word is law. This compliment will be extended to their dentist if he demands it. The writer has made upwards of seventy gold plates in the last sixteen years; less than three per cent. of this number were called for. Whenever he had a patient whose tastes were extravagant in their every day wants and in dentistry wanted to use the most rigid economy, it was shown to them how inconsistent this was and how unjust to the dentist.

By obtaining die direct from impression you do not get any farther from impression than you do in vulcanite work. Under cuts are no harder to contend with than pouring plaster casts. Not so with the old way of using molder's sand and core. The making of dies from impressions has always been practical, except for the extreme liability of gas forming underneath the metal and creating a dome in the roof of the mouth. Plates made from such dies invariably rock. I have overcome this by placing impression tray in a vertical instead of a horizontal position during the pouring process. There are many swaging devices on the market, all lacking in some essential feature; this device has combined the desirable features of all, and in addition many new and original ones.

First.—Any counter-die can be used in this that can be used in any other, viz: soap, beeswax, modeling compound, corn meal, unvulcanized rubber, shot and moldine.

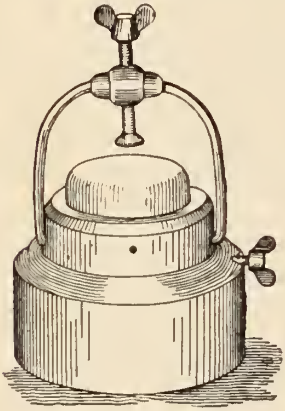
Second.—Die is driven into counter-die and being attached to follower, die and plate are drawn out of counter-die, doing away with the necessity of digging work out of counter-die, as in case where die is placed in bottom of pot.

Third.—Dies with imperfect bases are less liable to be cracked in the swaging process, as they are given a perfect bed by being attached to follower.

Fourth.—No other device has a clamp to facilitate the preliminary swaging process, thus enabling the operator to use a much smaller pattern of metal, also preventing plate from becoming contaminated by shifting and grinding die metal into place.

MAKING OF THE PLATE

Place about one cubic inch of sealing wax on concave surface of follower, melt wax slowly, holding blow pipe flame high to prevent wax from catching on fire, also heat die as hot as it will stand not to run the risk of fusing metal, handle with cloths to prevent burning the hands. Force base of die into the softened sealing wax, imbedding base about one-fourth of an inch, being careful to place median line of die so that the bail will straddle die transversely, and thumb screw will oppose roof of mouth. Oil die with castor oil, anneal plate, hold it on die with thumb and finger, then pound it down in the roof portion with wood or horn mallet. After this is done, place block of soft wood about three-fourths of an inch square on plate in roof, or in case of lower denture, floor of mouth. Raise clamp and screw over die and plate, tighten thumb screw on block until plate ceases to shift (see Fig. 1). Cut plate at median line, bending plate over ridge with mallet, taking out the crimps with hard wood stick. Place any of the above counter-dies, soap or modeling compound preferred, in bottom of pot, using just enough to prevent die from coming into contact with bottom of pot during the swaging process. If the undercuts are large and modeling compound is used as a counter-die, place it in pot in sections or rolls with paper between so that in drawing work out of counter-die it will come away at these joints and can be replaced for further swaging. Disengage the clamp, anneal plate, invert follower, placing die and plate in counter-die. Place swager on heavy pounding block or anvil, striking follower with heavy ham-



Swaging Device.

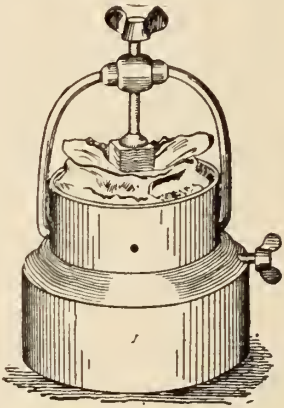


Fig. 1.

mer five or six times. Remove follower, anneal plate, work out crimps, bring out ruga and suction cavity with sharp hickory stick. Reswage as often as is necessary. Better results can be obtained by taking swager to blacksmith shop or wherever a sledge hammer can be used; it is impossible to injure swager or work by blows. The thumb screw on side of pot is to facilitate the carrying of swager to and from such places. The thumb screw should fit in groove of follower and should be loosened during swaging process.

In swaging a lower plate, do not cut pattern horse shoe shape, but leave plate so as to cover floor of mouth, cutting it out after swaging is finished. By doing this you greatly facilitate the swaging process and lessen the liability of the plate shifting on the die. Block of wood can be placed on floor of mouth as in roof of mouth in upper denture. After obtaining a satisfactory impression, trim edges of impression shapely, wrap ribbon of paper about one inch broad around edge of impression and seal with small quantity of beeswax. Lay impression down on table, build wall of plaster of paris all around impression, as high as edge of paper. (See Fig. 2.) Allow this to harden, then build on inside of paper from edge of impression to top of paper, being careful to make a tight joint between paper and impression to prevent the escape of metal. This can best be done by working plaster on ball of

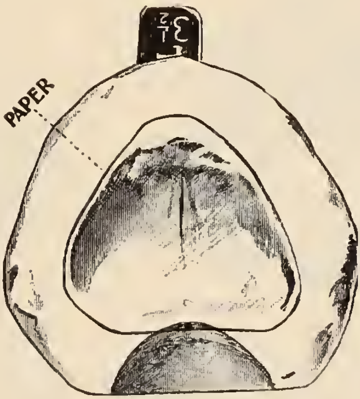


Fig. 2.

finger. Outer wall of plaster should be at least one-half inch thick, the wall to extend all around impression tray. Dotted line in figure 2 illustrates edge of paper strip after sideboards are completed. Trim wall of plaster down to desired thickness of die, true edges, to facilitate making good joint between clamp and plaster wall. Cut wall away at back of impression, making the opening very large so that the metal can be readily poured in, opening to be made larger than is indicated in figure 3. It also facilitates the escape of gas, this being the secret of obtaining a correct die. Place roll of moldine or asbestos wicking on edge of impression as indicated in figure 3. Place plate of impression clamp on asbestos wicking or moldine, and work down till a metal-tight joint is secured between plate and impression. Attach bail of clamp to pivots in plate, having thumb screw oppose back of impression tray. Place thin block of wood between end of thumb screw and impression. Tighten thumb screw sufficient to prevent the escape of metal. (See Fig. 4.)

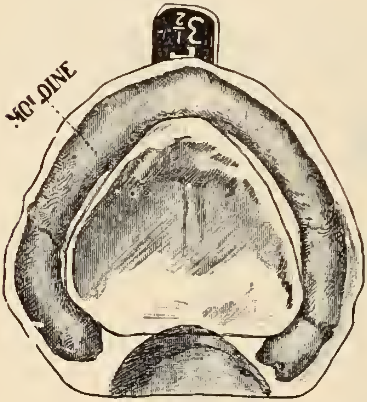


Fig. 3.

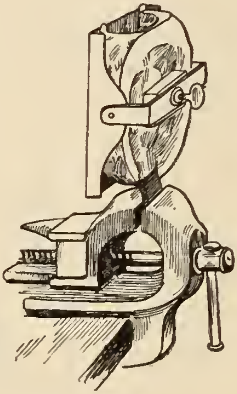


Fig. 4.

Place impression in a perpendicular position by screwing handle of impression tray in a vise as in figure 4. Your impression must always be dry, absolutely no moisture in it, to secure good results. I am convinced Haskell's die metal makes the most desirable die and lessens the liability of contaminating your plate, as is the case when using lower fusing die metals.

I have also been more successful in obtaining a flawless die with it. If this metal is poured cold, not completely fused, it is best to crowd it down in impression with a stick. To those who insist on scraping or creasing model to overcome soft or hard spots in mouth, I would say that this metal can be as readily scraped or changed as a plaster cast. Back edge of plate can be turned up by cutting groove in die with engine bur. First scribing on die exact location of edge of plate with excavator after plate is swaged. A Chase combination plate can be made by soft soldering tinned wire on ridge of die, flattening wire with a file after it is attached to the die. Melotte's metal can be used if preferred, but great care should be used to prevent the contamination of plate. A very satisfactory die can be obtained from modeling compound impression by using die metal consisting of the following metal: Formula —Bismuth 48 per cent., Cadmium 13 per cent., Lead 19 per cent., and Tin 20 per cent. This metal can also be poured into a wet plaster of paris impression with little or no risk. This device can also be used to swage aluminum impression trays.

CARE OF DECIDUOUS TEETH.*

BY F. E. RENKENBERGER, D.D.S., COLUMBIANA, OHIO.

To know what to do with deciduous teeth is very often a perplexing question to the conscientious dentist. Most children are not taught the value their teeth are to them. Nearly every child needs our service often, many need it badly.

In the decade of our lives, there is no time from the "cradle to the grave" when the teeth need more care than from the age of three to thirteen years. And yet how many children of that age are suffering because they have not been taught the fundamental principles of hygiene in their youth? Many of our professional men shrink from their responsibility in this line of practice, and the reasons are obvious. Every dentist knows the amount of time and patience it takes to gain the good will of our small boys and girls. It taxes our nervous energies severely, and is not always remunerative.

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*Read at Northern Ohio Dental Society, June, 1902.

We must all remember that our boys and girls to-day will be our men and women of to-morrow. If we successfully attend to their wants in childhood, they will appreciate the good we have done them when they grow older. The question is often asked, what should be done with the teeth of children? In many cases it resolves itself into what can be done. Very often much depends on the patient. Some children will allow you to do whatever is necessary, while a few are by nature rebellious and unmanageable, and will yield only by force. In such cases much time is consumed in explaining to the child what the real value is in caring for its teeth. It has been said a dentist should have the "head of a scientist, the skill of a surgeon, the heart of a mother, and the hand of an angel." The latter two are especially essential in the care of children.

When a child is first presented to your care, it is very often after it has been suffering for two or three days from odontalgia. The father or mother very often demand extraction at once, which is very pleasant for the dentist. Right here presents a good opportunity to instill into the minds of the parents the need and care of the child's teeth.

If the dentist is loyal to his profession, he will take the time to reason with the parents and pursuade them to spare the child's teeth, as they are as essential as their own.

The question often arises, of what use is it to fill children's teeth when they are soon to be replaced by permanent ones. Parents do not understand that they have a great value in keeping the arch in proper shape for the eruption of the permanent teeth. Again, the mouth is the gateway through which the food enters the body, and where it undergoes its first preparation for digestion. This is as important to a child as to the adult, if thorough mastication is essential for the development of the system, no one needs it more than our children, who need nutrition for the development of every organ of the body. Therefore, it becomes the duty of the dentist to not only instruct the child, but instill into the minds of the parents the care and value of the children's teeth, and have them teach their children the value of hygiene of their mouth.

It is just as necessary to instruct the child to keep its mouth in a hygenic condition as the face. How often are children punished for not keeping their faces clean? If the same precaution were used for their teeth the result would be just as marked. How many mothers will allow their children to start to school without seeing that they are looking neat and clean, externally, but never think that it is just as essential to clean the mouth as the face? As a child is instructed to all other cares of the body, it cannot learn this great care without a teacher. Then where should the teaching begin, with the child or with the parent? Practical education in the use of the brush is requisite and must be imparted before full benefit can be derived. Every mother must in some way conceive the idea to educate her children to the proper use of the brush. It should be the duty of every dentist to instruct his patients as to the kind of brush to use. While some gums are very tender and should be cleansed with a soft brush, others should be of a firmer structure.

A very good rule to follow may be, not to allow the child to eat breakfast without brushing its teeth. In this way the child soons grows into the habit of caring for its teeth, so when it grows older it has a fixed habit. This can be taught a child when quite young. The child should be taught to use the dental thread at the same time; to draw it between each tooth, as it will cleanse where a brush cannot reach. Another method is to have the children cleanse their teeth every evening before retiring and then use the thread between the teeth, after which the mouth should be rinsed with an alkaline solution, such as lime water or milk of magnesium. This will keep the mouth in a healthy condition.

As a child's teeth develop it should eat food that contains a large portion of necessary salts to develop the tooth. All children should be fed on oat meals, wheat meals, fruits, vegetables, milk and hominy. As the child grows older it should be taught to exercise the teeth, to chew crusts and avoid strong drinks, and we will soon see the effect on the patient. When the child is nursing the mother should be careful to eat such food as will develop into bone substance, as bone is one of the necessary elements in building the body.

While the teeth are erupting they lie in a bony cavity, the crowns being fully developed, but the lower portion of the root is composed of soft dental pulp, which has not yet become tooth bone, to give a firm anchorage to the jaw. As the tooth develops the bone above the tooth is absorbed and the tooth rises up against the elastic gum tissue.

At this point back pressure at once results, and the tooth is pressed back on the nerve. If the elastic gum tissue yields to the force of the tooth there is no interference. But if three or four of these nerves receive back pressure, the child at once becomes very nervous and restless. In case where the child begins to drool and its bowels become unexplainably deranged, lance where the teeth are expected, and lance thoroughly. Do not wait for the gums to bulge out before you lance.

In every case of lancing be sure you penetrate the sack which surrounds the tooth or your work will be fruitless, and your patient continue in the same condition. Be careful not to allow the gums to heal over the tooth before the tooth has erupted, or the lancing must be repeated.

After eruption great care should be given to the teeth of the child. The parents should make it a rule to have the teeth examined every six months. If this rule was carried out there would be a great deal less decay in deciduous teeth. After the child has been taught to visit the dentist frequently, it soon grows into the habit of having the teeth looked after, and will not have that dread towards the dentist as many have who have not been taught the value of their teeth.

In many cases silver nitrate may be applied to the cavity to arrest the decay. This can be done by the use of a platinum wire or by heating some gutta-percha and carrying some pulverized crystals of silver nitrate to the cavity. By this method the powder can be held in position for a long time, and the decay arrested. This is very important in small children where you cannot excavate thoroughly and where you wish to do the work with very little pain.

In filling deciduous teeth, the question often arises, what material shall we use to give the greatest service? In my experience I have found that each case required a thoughtful consideration, and no one material can be made a basis. In the posterior teeth where the nerve is protected, and retaining forms can be secured, amalgam seems to give the best service, as it is more lasting and quite easy to put in the cavity. Where amalgam cannot be used, gutta-percha takes the place, as this can be used without a great deal of excavating.

In the anterior teeth cement seems to be the ruling element. As each case varies let every dentist be faithful to his profession and select the material which best suits the case at hand. In some rare cases this cannot be done, as the patient is of such a disposition that you must use the material easiest inserted and not create any ill feeling to the child. This had better be done than lose the good will of our little patients.

When the teeth have decayed to such an extent that the pulp must be devitalized great care should be exercised to cause as little pain as possible. Devitalizing should be a very rare occurrence in deciduous teeth. In devitalizing a pulp the use of a very small portion of arsenic should be applied to the exposed pulp and left there from 36 to 48 hours, or such drugs as will cause a very little pain. When the pulp is dead it should be extracted and the root canal filled with such material as will seal the canal secure and will be of no hindrance to the absorption of the root by the permanent teeth.

In cases where the pulp has suppurated great care should be taken to place the tooth in a healthy condition. This can be done by first opening the pulp chamber and washing with warm water, after which some antiseptic should be used. As there are numerous methods to regain the aseptic condition of the tooth, let each dentist use the method from which he has gained the best results, and be sure that you have done the work thoroughly before filling.

In extracting deciduous teeth you should be governed by conditions of the case, as no fixed rule can be formed. When you find the tooth a source of irritation, affecting the health of the child, and does not respond to treatment, it better be extracted. Also when the teeth are preventing the eruption of the permanent teeth in their normal position. In a few cases a deciduous tooth may assist in the proper placing of a permanent one. In such cases it should not be removed as long as it is of such use, but it should be looked after quite frequently.

In case the lower permanent incisors erupt on the labial surface the deciduous teeth should be extracted at once. But if the permanent teeth erupt on the lingual side the removal of the temporary teeth may be delayed somewhat longer. In the upper jaw this process is just the reverse, as they often aid in forcing the permanent teeth in position. In extracting deciduous teeth great care should be taken not to deceive your patient. Explain every step of your work and the child will become interested in what you are doing. And as they realize you are taking a great deal of interest in them they will yield to you very much easier.

In all cases be sure you do not deceive your little patients, as an untruth will become so firm in their minds that it may take many years to forget, and may be the cause of further neglect of their teeth. If you have small patients and you know it will be painful to do the work, be sure to inform them of the fact, and do not persuade a child to have its work done by telling it that it will not hurt. Do not allow any one else to tell an untruth to your patient, as it will be as harmful as your own.

In all your work be truthful and faithful to your duty, be cautious in all your work. Remember, "what is worth doing is worth doing well." If this is true in any profession it certainly is in dentistry. As the best work sometimes proves unsuccessful, it becomes the duty of every dentist to make all his work as near perfect as possible. Always set your mark high and aim to reach it, and you will be crowned with success.

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SOCIETY PROCEEDINGS

NORTHERN OHIO DENTAL SOCIETY.

CARE OF DECIDUOUS TEETH.*

DISCUSSION.

S. B. DEWEY: There is probably nothing that taxes our ingenuity so much as the management of little people, and it is impossible to lay down rules or prescribe exact methods, for each individual case may require different treatment. I do not think that adult people need a perfect dental apparatus as much as does the growing child, and the child of from two to six years old needs nutrition more than any other time in its life. It is the time of the most rapid development of the brain and nervous system, and they therefore need to have the dental organs in good order that their food may be properly digested.

I think many of our parents have been given to the use of cereals almost too much. It teaches the children to swallow their food without properly masticating it, and beside this, it was evidently the design of nature that the chewing of food should cleanse the teeth. The child will take his bowl of mush and swallow it without any attempt at chewing. There are no cereals which are not of a starchy nature, and the saliva we know is essential to their digestion, but if the process of chewing does not cause a flow of saliva, then the process of digestion becomes impaired, whereas, if the child had some hard substances to masticate, it would be taught to chew. Particles of starchy matter are thereby left upon the teeth to ferment and the teeth are damaged. Only a few days ago I had my attention called to the teeth of a little child who gave evidence of this kind of feeding. It was a boy of twelve, and his teeth showed a very dirty, muddy color, and the gums were not healthy. Were children obliged to eat things they would have to chew, you would see children with nice white teeth, the processes well built up, teeth that will stand the ravages of disease better, and teeth that will not decay as do those of childred raised on soft food.

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*This paper is presented on page 525 of the current number.

The essayist says we should insist upon the use of lime salts in the foods used, in order to supply the teeth with bone substance. Now it is a fact that nearly all of the foods we use contain lime salts in a sufficient quantity for the development of our organs if the food is properly assimilated. We get too much food, often more than we can digest, with the result that a fermentative process is set up and a quantity of fermented food left to take care of. It is not lack of material, but lack of appropriation. Concentrated foods or pure lime salts are not good. They derange digestion, and are often passed from the body as taken. The stomach was made to elaborate proper materials for building up the body, out of coarse bulky food.

Regarding destruction of the pulp and the cleaning of the pulp canal, I consider it better practice to keep the deciduous teeth in place even with an abscess, or a fistula upon the root, than to suffer its loss before the appearance of the permanent teeth. He speaks of filling the roots with such agents as will not interfere with absorption. It matters not with what we may fill the root, absorption will go on just the same. Of course it is always necessary to have the pus removed in order to have absorption take place; if this is done the root will be absorbed. I do not think it is necessary to make the effort to fill the root canal as perfectly as we would a permanent member. Many times packing with iodoform cotton will be sufficient, and this will make the patient comfortable and keep the tooth free from suppuration.

Of course we have thought in years gone by that we must fill our children's teeth largely with tin. I am an advocate of that in a great many cases, but I find that it is best to adapt the material to the case, instead of vice versa. There is one material which we can use in operating on children, and which I have used very successfully myself, and that is Ames' oxyphosphate of copper. In many cases I have done nothing more than to dress the margins of the cavity and put it in, and you can put it right onto a live pulp if you are careful not to put too much pressure on it.

J. E. Phelps: Chief among the elements of child food is milk. Does the average mother know the comparative constituents of the mother's and cow's milk? That hers has 4 per cent. salts and 9 per cent. albuminous elements; cow's milk 8 per cent. salts, 4 per cent. albuminous matter; and in grain foods, oats 3.03 per cent., wheat 2.05 per cent., barley 2.03 per cent., ranks highest in bone building. In vegetables, beans 3.03 per cent. and peas 2.09 per cent. In fruits, bananas, 1.01 per cent., whortelberries 1 per cent., apples 2 per cent. and strawberries ⅛ per cent.

Some one asks, who is authority on milk? The government. Farmers' Bulletin No. 42, "Facts About Milk." Address Dairy Division, Washington, D. C. A postal card will be the only expense, and a knowledge of its contents a blessing to any family of children in the land.

Every dentist should disseminate and encourage parental knowledge as a part of his duty, by precept, example and kindergarten literature. I have had printed and distributed thousands of circulars making plain, by diagrams of teeth, and usual dates erupted, with suggestions as to the duty of parents and others to children's teeth and facial development. What is the result? A pleasant practice.

Kindergarten dentistry needs above every other, parental co-operation. Particularly a painstaking mother. I have been asked: "How do you succeed with children?" Care, kindness, confidence and especially contributions to some special want they have in mind at that time. We discovered years ago that children learned the value of money early, and from three years up they will, for a small token piece, usually volunteer to any reasonable dental operation, and generally without disturbing any one who may be present in the reception room. They forget their temporary grief in the pleasure of spending money. If the parents or others neither express grief, or desire to lionize them to friends, who want to recount more harrowing tales in their ears, the child makes dental operations forgotten history.

In this city in 1901 there was of school age, 124,000. Boys 62,074, girls 61,977. Children under school age approximately 40,000, a total of about 164,000 in this city. In this material there is business for several others for a pleasant and remunerative practice, and worthy young dentists would soon be complimented by having children turned over to them by some of the time-honored of this society of the city who may not have time for the usual compensation it offers.

You all understand the best methods of preserving the teeth by inviting calcification, and the modern filling materials. Do you make a study of how best to impress on the community in which you live the best bone foods and kindergarten knowledge of dentistry? "To keep the teeth from fell decay, as often as you use them gently pick and brush away the food, but do not abuse them."

It is estimated that the regular rations for our soldiers cost the government eighteen cents daily. Among the first requisites demanded of these protectors of the government is teeth. They can cultivate military dignity, courage and physical development. What the government is to the soldier, the parent should be to the child. Its teeth are as much a part of the alimentary canal as the fingers to the hand and arm, and the future of that child's comfort demands, and is entitled to consideration. If the future of the race is dependent on the women of the country, it's not too much to expect of them that they could give a simple and comprehensive outline of the functions of maternity, or teach a child that the alimentary canal was a connected course through the body in touch with the mouth, tongue, teeth, salivary glands, esophagus, stomach, small intestines, colon, liver and pancreas. That whole grains of cereals, beans and peas and milk, whether of the mother or animal where these food grains and vegetables predominate, making possible for the most liberal contribution to muscles, bone and tooth development of the infant and later up to and through the teens arriving at thirty years, the age estimated to be the pinacle of the average physical possibilities.

Physiologies are used in your public schools and urge the earlier and more thorough teaching, and offer to supplement it on teeth, by fifteen minute talks before the several classes, illustrated with charts, models or interesting specimens on care of deciduous and adult teeth, remembering that the average length of time annually the pupils enrolled attend school in this country, ninety-nine days, and the average number of years less than five. In this instruction you assist in making the best type of boys and girls, who learn to quote you as a friend, and your profession a public benefactor.

The dental graduate of this day owes much of his possibilities to his predecessors, in turn he owes much to society in which he lives, to make his future a benefaction to the child under the age of teens. Your elders have done much to displace parental ignorance about personal and professional care of the teeth with the classes. You have the advantage of these, with physiology in public schools to reach the masses. The field is rich in appreciation, remuneration and promise to each and all.

J. R. OWENS: Arsenical preparations should not be used for the destruction of the pulp in deciduous teeth. In the treatment of deciduous teeth where the pulp is devitalized, thoroughly cleanse the pulp cavity, getting free access to it and washing it out with tepid water, cleaning it out with pyrozone and then wiping it out with beachwood creosote. I am not particular about having it perfectly dry in the pulp canals, and in filling I do not make such a tremendous effort to fill the canal. Of course more or less absorption will take or has taken place, and in an effort to fill the canal thoroughly might press the filling beyond the apex and probably more harm would be done than in filling the canal imperfectly. If we leave the funnel-shaped opening made by absorption only partly filled, my experience tells me we do little harm. For filling I use Hill's stopping for the pulp cavity gutta-percha and for the crown, as this stands use very well. If the case is such that you think it will not, then fill with amalgam.

W. T. Jackman: I want to emphasize one or two points: First, never deceive children. You can never get along with them if you deceive them. I never in my own practice have failed to get along with children, because I have always told them the truth to start with.

The other point I want to emphasize is the kind of tooth-brush to use. Those usually sold in the market are too stiff, and are dangerous to use. I always tell my patients to get a soft brush. You cannot clean the teeth properly with a stiff brush, for you cannot get the bristles between the teeth. That is my opinion, though I know there are those who do not agree with me.

W. A. Price: I think I have been successful with children, for I have had them come in and point to the dental engine and say, "That is what I like." My methods are various to get these little ones interested and help them to lose sight of what they have come there for, and pay their attention to something which will carry their minds away from the thought of pain. One of my methods is to ask them if they know they can hear things with their teeth, and then after I get them interested in finding out that they can hear with their teeth, I take out my watch and tell them to take hold of it with their teeth and listen and see if they can hear through their teeth. Then I take the engine and let them see how it runs, perhaps take a bur and tell them to listen when I touch it to their teeth, and see what it says—get their minds onto the question of sound, and when I have accomplished this, then I take their attention by using different burs, and ask them to listen and see if they don't sing a different tune.

One of the most delightful ways of getting them to let you work at their teeth is to tell them that little fairies, called germs, live in their teeth, and that I am going to take the roof off their little house with my burs, and tell them that when I get it off, the fairies will come tumbling out, and tell them to listen when the roof comes off and see if they can't hear the fairies being tumbled out. When these children come to you again, you can do almost anything with them.

A little child of five came to me a day or two ago who had evidently suffered severely at the hands of some dentist, having had a deciduous molar extracted, and this little child came to my office trembling and crying with fear because of her former treatment. I dealt with her tenderly and lovingly, as if she were my own, and this morning I had this same child in my chair again, for a long time, and when she left, she asked her mamma when she might come again. Now this child was only five years of age, and it was a very grave matter that another dentist had handled her so roughly and with deception and made her so frightened. The whole question lies in our telling them the truth, gentlemen, and our being more sympathetic and gentle with these little ones we can do any thing that is necessary for them.

W. H. Whitslar: I wish to speak on one or two points in this paper. First, with regard to the period when the child is first devoloping. We heard it stated that mothers should during the period of pregnancy eat things containing a large proportion of lime salts. Now, I believe in allowing the mother to eat just what she wants. Let her eat meat, for instance—the shape of our teeth indicate that we were intended to eat meats—and meats contain salts which should be assimilated to make bone, and if the food, whatever it is, if only it be nourishing, is properly assimilated, it will build up the teeth and jaws, according as we use judgment in the use of nourishment. I think we pay altogether too much attention to these fads which have been predominant for years and years.

Another point I would mention is with regard to deciduous teeth, their treatment. After devitilization, I would fill the canal of the tooth with anything that would make an acceptable filling. The paper stated, I believe, that the pulps might be dead previous to absorption of roots.

In a paper written by Prof. Peirce, he stated that a very necessary point in the decalcification of a deciduous tooth was that the pulp should be alive. Now, I have been watching this point for years to see if there was ever a case in which when the pulp was not alive, the root was absorbed, and I have never yet found a case in which deciduous teeth were absorbed after the pulp was dead. I know that this is hard to prove, and I know that we extract deciduous teeth after the root has been absorbed, but we do not know that they were absorbed before the root was dead. Now, do not misunderstand me, for I was speaking of the normal or physiological absorption—the teeth may also be absorbed abnormally by a process of acidity in the formation of pus. You find many times in extracting a tooth in which pyorrhea is present, that there are little cup-shaped places in the surfaces, evidently due to the absorptive or decalcifying effects of pus, which occurs not only in ordinary pyorrhea, but again you may have absorption in a normal way even though the pulp were dead—it would be a slow process.

S. B. Dewey: I want to take issue with Dr. Whitslar on that question. This morning after leaving the meeting, I went to my office and extracted the lower second molar of a child who came to my office two years ago this summer, when I filled that tooth. To-day I removed it and found nothing but the crown resting on the gum, and I positively know that those roots were dead when I filled it two years ago.

J. F. Siddall: What did you fill it with?

S. B. Dewey: I filled the child's roots with iodoform and oil of cloves on cotton.

Now, if, according to Dr. Whitslar's theory, we do not have absorption after the death of roots, it must follow that we do not have absorption of a surgeon's ligatures because they are dead matter. We know that nature always makes an effort to remove anything that is useless to her. She will attempt it anyway, and the only thing that will keep her from it, if it is at all assailable, is that it may be surrounded with pus, and in that case of course there will be no absorption till after the pus is removed. I recall Dr. Peirce's teaching of years ago, who stated that there was no absorption after death of the pulp. I claim it does occur, although it may not be as rapid. To-day I have positive proof of it in the case which came to me. Dr. Block and Dr. Sudduth also observed absorption of roots of both temporary and permanent teeth after the pulp is destroyed.

N. B. ACHESON: I wish to say just a word on this topic as to the absorption of roots where the teeth have had the pulp devitalized. A number of years ago, perhaps 20 or 25, there was a fad which ran through the profession of removing abscessed teeth, taking the peridental membrane off the roots, filling and replacing them in the sockets. Like some others I was caught by this fad, and did several in this manner. I recall that within one year from that time some of these cases came back to my office, and on examination I found that the roots had become completely absorbed, no sign of a root left at all, and you could pick the tooth off the gum with the thumb and finger.

G. H. WILSON: I want to add a word upon the subject of resorption of permanent teeth. We have now in the Museum four teeth with which I made replantations. In each case there was no formation of pus, and the roots were more or less resorbed. Of course, as has just been said, the dead tooth in any case becomes a foreign substance, and nature will always remove such matter. We notice that the pulp has much to do with the case normally, because resorption takes place largely within the tooth; even if it is not alive the roots will be resorbed.

Another point is with regard to what Dr. Jackman has said about a soft brush. A stiff brush is the proper thing with which to clean the teeth; you cannot clean them properly with anything else; there is no danger of injury to the teeth if proper care is used in handling the brush. Of course it would not do to take a stiff brush and set it running with an electric motor, but we can take a stiff brush and with a slow, even motion, make the bristles act as so many tooth-picks to cleanse and remove all particles between the teeth. In my opinion, if you are to use a soft brush, you might as well take a soft cloth.

I like this paper especially, because it advocated teaching the children to care for their teeth. If this were done so that the children acquired a habit of caring for the teeth, there would not be the amount of crown and bridge-work needed which is being done to-day.

H. BARNES: There is much to be commended in the outline as given by Dr. Price of his method of dealing with children, but when he took that disinfected(?) watch out of his disinfected(?) pocket and placed it in that disinfected(?) mouth, I wanted to ask him if his watch kept good time. Dr. Price, like many of us, forgot a very important point.

J. F. SIDDALL: In using a new brush, you should always be careful not to injure the gums and cheeks, especially if it is a very stiff brush. A brush becomes softer with use, and in time may be used more vigorously.

The less you say to anyone about pain the better—no one wants to hear anything about it. I sometimes say, "O, you don't care if it hurts just a little." Take a little time with a child, and talk about other things than its teeth. Get their little tongues a going. Sometimes that will help lots, as it does their mothers often.

W. G. EBERSOLE: Do not deceive nor hurt children. Better let them come two or three times without your doing anything for them rather than that you should hurt them when you have told them you would not. And I would follow this up also in the same way as far as adults are concerned.

With regard to what Dr. Acheson has said about extracting the teeth and removing the peridental membrane and replanting them. This has been the method of a great many men who remove teeth and replace them. I have removed a great many teeth and replaced them, using the greatest care not to injure the peridental membrane, and I have not always even removed all of the abscessed tissue. I left all that I possibly could. I know that you will criticise me for not curetteing away all that I could of the abscessed tissue, but I will say to you that nature will care for that and prepare a perfect alignment when the irritant is removed.

G. H. Wilson: How long did you watch these cases?

Dr. Ebersole: I have watched these cases for from six months to four and a half years, only a short time I know, but so far they are in first-class condition. I have a case four and a half years old which I showed before the Northern Ohio Dental Society two years ago, and shall show it here later, not this time, but after a few years I hope to bring it before you. The results are most gratifying.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

TAKING PLASTER IMPRESSIONS OF MOUTHS IN WHICH THE TEETH FORM UNDERCUTS. A NEW METHOD, SECURING GOVERNANCE OF FRACTURE.

BY JOSÉ VALDERRAMA Y BARRENECHEA, PHILADELPHIA.

Every dentist is familiar with the difficulties which accompany the taking of plaster impressions of mouths in which some or all of the teeth are present. These difficulties are further increased when the teeth are irregularly placed and when their direction is such that the impression cannot be removed, we will not say without breaking it—for that is almost an impossibility—but without fracturing it into so many small and irregular pieces that the operation of fitting them together with wax becomes not only a very long, but also a very tedious task.

To avoid these difficulties we have adopted the following procedure which has given us satisfactory results, and which we believe will be especially useful to orthodontists, this class of practitioners being more likely than others to be called upon to take impressions of mouths in which all the teeth are present.

The method is as follows: An impression tray suited to the particular case is divided into *four pieces,* as shown in Fig. 1, the front piece embracing the incisors and possibly the canines, the two lateral pieces the teeth beyond the canines,

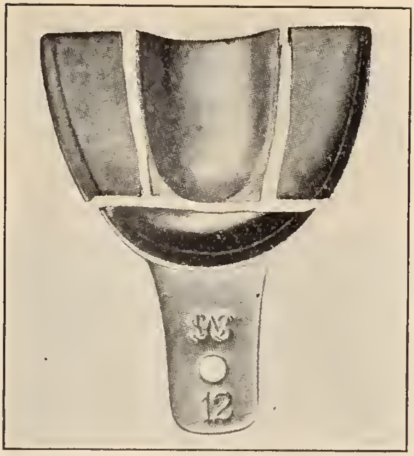


Fig. 1.

and the fourth piece the roof of the mouth. The four pieces are then waxed together with hard wax and the impression is taken in the usual way.

In removing the impression, the purpose of having previously divided the tray at once becomes manifest.

The front section is first broken away—*the fracture necessarily following the front dividing line of the tray.* (Fig. 2.)

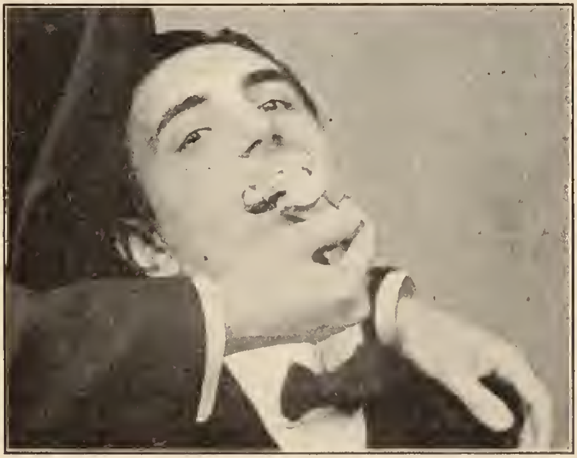


Fig. 2.

Then the lateral sections are removed in like manner, and finally the palatal portion. Each section of the divided tray carries with it its corresponding section of the impression, yielding a matrix in four parts (Fig. 3), readily adjustable by reason of the large fracture surfaces of plaster which serve as guides in accurate coaptation.

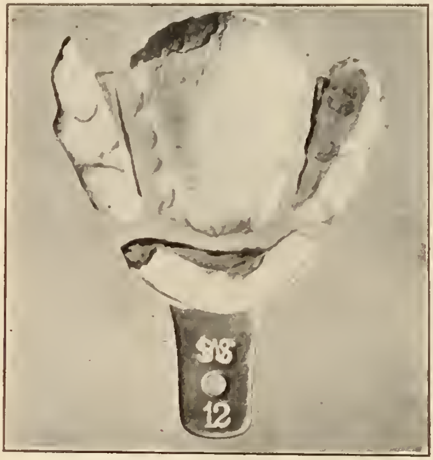


Fig. 3.

After all the sections are reunited with wax the impression is ready for the further steps usually taken in the preparation of a cast.

This plan of procedure is also very useful in view of the fact that it obviates the troublesome and annoying operation of first removing the tray and then cutting the impression.

It is, of course, to be understood that it is not imperative or essential to cut the tray always into four pieces only. If the practitioner judges that by cutting it into five or more pieces the operation is further facilitated in a given case, that should be done, the principle involved in this procedure being simply to divide the tray in such a way that the impression shall be fractured into large and regular pieces predetermined in size and direction by the section lines of the divided tray.—*Cosmos.*

SUGGESTIONS

Method of Removing Teeth from Vulcanite Plate.—W. A. Stevens demonstrated a method of removing one or more teeth from a vulcanite plate without any distortion of the denture or checking of any surrounding teeth or of the teeth to be removed. The method is to apply to the teeth to be removed a coating of sperm or other oil. Then hold tooth to be removed directly over a small pointed flame. As soon as tooth is thoroughly heated it may be removed without difficulty. This was a very good demonstration of a practical point.—*Review.*

Vulcanite in Plates.—J. Requa.—Immediately back of the incisors the rubber should be barely thick enough for strength, and in finishing that part of the plate the dentist should have in mind the tip of the tongue of the one who is to wear it. Allow as much room and free play as possible, even though the plate at that point be a little weakened thereby. A liberal amount of rubber in the central portion of the arch will supply strength and not be in the way of the tongue or food. On the lingual side of the bicuspids and molars there should be only as much vulcanite as is compatible with strength, in order to give the sides of the tongue plenty of room.—*Digest.*

Fusing Pure Gold Over Platinum Bands in Porcelain Crowns.—G. H. Henderson suggests a method of doing away with the bluish appearance of platinum bands in porcelain crown work in case of a recession of the gum. After the crown is made he places a strip of thirty-six gauge pure gold over the labial portion of the platinum band and fuses it on. This makes a gold plating over the platinum that will never wear off and it presents a more satisfactory appearance than platinum where there is subsequent recession of the gum. —*Review.*

PORCELAIN CROWNS BY A NEW PROCESS.—G. B. STONE, of Chicago, constructs porcelain crowns by a new process, baking them with the Turner gasoline furnace and using S. S. White and Brewster high fusing porcelains. Fusible metal matrix was made over a metal tooth one-sixth larger than the desired crown, this to allow for shrinkage of porcelain. Body was forced into matrix and excess of moisture taken up by blotter. Matrix containing crown was then melted and crown removed and baked. This is a fine method and the clinician's results were very good.—*Review.*

RELIEF OF PAIN AFTER EXTRACTION.—Seiler's Antiseptic Tablets are an excellent preparation for relieving pain after extracting, and that caused from adjusting crowns or any inflammation of the mucous membrane. It should be used by dissolving one tablet in two ounces of water. Apply to the part affected.—*Brief.*

TO KEEP FLASKS CLEAN IN VULCANIZING.—W. J. WORSLEY.—If those desiring clean flasks, after the vulcanization of plates, will place a teaspoonful of common baking soda in the vulcanizer before starting the same, they will find that the flasks come out almost perfectly clean, and there is no danger of the regulator being operated by hydrogen pressure.—*Brief.*

CARBOLIC ACID TREATMENT OF ABSCESSES.—CHAS. F. BONSALL.—I invariably find that alveolar abscess, especially when chronic, will yield to the carbolic acid treatment. It is my practice to open through the apical foramen with a drill or long taper broach, and inject carbolic acid, forcing it through and out the fistula. I employ for this purpose either a hypodermic syringe or a broach tightly covered with cotton fibres; this, when saturated with the drug and inserted in the canal, acts as a piston, and is very effective in forcing the medicament into the apical space.

INFLUENCE OF SYSTEMIC CONDITIONS ON ALVEOLAR ABSCESSES.—J. F. WESSELS.—Systemic conditions frequently favor the development of alveolar abscess. I have noticed this tendency in patients recovering from the grippe, who have unfilled pulpless teeth. Systemic conditions very often interfere with the treatment of abscesses. I recall one case treated for nearly three months without success. I noticed that the patient's health was much impaired, and suggested that she see her physician, which she did. Within two weeks she developed typhoid fever. I did not see her again until after recovery, when I found the abscess entirely healed. Whenever I find systemic conditions interfering with my treatment of alveolar abscess, or any other lesions of the mouth that properly come within my care, I do not hesitate to administer appropriate treatment, in fact, feel it my duty to do so.—*Extract from Dental Brief.*

TREATMENT OF FISTULOUS ABSCESSES.—J. F. WESSELS.—Abscesses with fistulas may be of the acute or chronic form, and may require, in some respects, special treatment. The root canal should first be thoroughly opened and cleansed. Afterwards, endeavor to force an antiseptic solution through the roots, and out through the fistula. I usually use for this purpose a hypodermic syringe, packing unvulcanized rubber in the tooth cavity, and through this passing the needle of the syringe to make a tight joint, so that sufficient pressure may be used to force the medicament through the root and abscess tract. After doing this successfully two or three times, I venture to try hydrogen dioxide, and force it through. If the case is an acute one, I inject a ten per cent. solution of zinc chloride, or equal parts of carbolic acid and tincture of iodine, through the tooth and fistula. I then dry the pulp canal and place in it a dressing; then, wrapping a little cotton on a smooth broach, I moisten it with oil of cloves and insert it into the fistula, allowing the end to protrude, and instruct the patient to remove it in about eight or ten hours. This keeps the abscess tract open at the surface, and provides drainage, and prevents its healing first at the surface. An abscess, especially if it is recent, usually heals after two treatments of this kind.—*Extract Dental Brief.*

EDITORIAL

INTERESTING STATISTICS.

Dr. F. D. Weisse, dean of the New York College of Dentistry, presented to the National Association of Dental Faculties at its meeting in August in Niagara Falls, N. Y., some interesting statistics relative to dental colleges, members of the National Association, their graduates, the practicing dentists in various states, etc. These statistics were gathered from the last edition of Polk's Directory, by correspondence with the deans of colleges, and from private and corrected lists, so the information is as accurate as can be obtained.

The statistical table shows that 24,954 have graduated from these 52 dental colleges from 1840 to 1901, inclusive. Of these but 16,390 are now in actual practice in the United States, but others in practice who are not graduates number 10,909, and graduates of lapsed and non-affiliated colleges number 309, making a total of 27,608 dentists practicing in the United States in 1902, which is 1 to every 2,736 of population. Their distribution is as follows: Ala., 403; Alaska, 24; Ariz., 42; Ark., 230; Cal., 1,243; Col., 317; Conn., 406; Del., 60; D. C., 256; Fla., 156; Ga., 532; Idaho, 108; Ill., 2,262; I. T., 143; Ind., 923; Ia., 1,085; Kan., 564; Ky., 581; La., 316; Me., 319; Md., 439; Mass., 1,388; Mich., 1,019; Minn., 575; Miss., 276; Mo., 1,114; Mont., 113; Neb., 342; Nev., 19; N. H., 192; N. J., 513; N. Mex., 29; N. Y., 3,030; N. C., 304; N. Dak., 81; O., 1,912; Okl., 113; Ore., 241; Pa., 2,582; R. I., 168; S. C., 215; S. Dak., 131; Tenn., 460; Tex., 738; Utah, 139; Va., 410; Vt., 151; Wash., 250; W. Va., 299; Wis., 887; Wyo., 42.

Much has been said, from time to time, about the dental profession being overcrowded, but these statistics do not so indicate.

Compare the dentists with physicians practicing in the United States and you will find that there is an average of one physician to 650 people, while there is only one dentist to 2,736 people.

Of the 24,954 graduates from the dental colleges since 1840, only 16,390 are in actual practice at the present time, showing that 8,564, or about one-third, of those who have graduated in dentistry in this country have either died or taken up other pursuits.

CONTROLLING PAIN IN DENTAL OPERATIONS.

The control of pain in dental operations is a desideratum greatly to be desired. Ever since modern dentistry began dentists have sought for a means to make dental operations painless, but alas! we have found the same old nerve; same old hurt; same nervous patient, despite all ingenuity exercised by dentists up to within a comparatively short time.

In cataphoresis we found relief, but apparatus were not perfect, and results were uncertain. With the use of more modern appliances, however, there seems to be more uniformly good results in treating sensitive dentine, and less of the disagreeable to the patient. The matter of time consumed, however, seems to be the stumbling block so long as dentists cannot obtain extra pay for its loss.

In this issue the subjects of pain and the combating of pain are discussed in the three papers by Dr. Whitslar, Dr. Ebersoll and Dr. Price, and we desire to call the reader's special attention to them as they contain valuable information and many useful suggestions.

EXCHANGE OF DENTAL DEGREES.

In 1868 a law was passed in New York State giving the New York State Dental Society authority, through its Board of Censors, to examine dentists and issue to them the degree of M.D.S. (Master of Dental Surgery). In 1895 the degree was retired, but up to that time it had been conferred on about 160 dentists, some of whom held the D.D.S. degree.

By an act of the New York legislature in March, 1901, the Board of Regents of the State of New York was given authority to call in the M.D.S. degrees and grant the D.D.S. degree in exchange.

A protest was made and in July, 1901, the Regents declined to exercise this power and referred the matter to the State Dental Society for a more definite report.

The National Association of Dental Faculties, at its meeting in August, 1901, and also at the meeting in July, 1902, protested against the issuance of the D.D.S. degree to other than college graduates, and sent a copy of the resolutions adopted to the New York officials. As we understand it, the statutes of the State of New York prohibit any man from adding M.D. to his name unless he has obtained the degree by a prescribed course of study in a reputable school of medicine. And although no such law exists with relation to the D.D.S. degree, it should be held in the same light, for it is strictly a dental college degree, and so recognized the world over.

Those holding the M.D.S. degree have something possessed by few, which cannot be obtained by more, and which carries with it a certain distinction not possessed by even the D.D.S. degree. We cannot see why the possessors of this specially conferred degree should be willing and anxious to make the exchange.

NEW PUBLICATIONS

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M. D., Prof. Hygiene and Bacteriology, University of Pennsylvania. Sixth Edition, revised and enlarged. Philadelphia: Lea Brothers & Co., Pub., 1902.

This standard work has reached its sixth edition, and is recognized as a leading text-book on bacteriology. Prof. Abbott is a painstaking and thorough investigator and what the book contains may be depended upon as the most correct information obtainable. The book is more voluminous than its predecessor, for in its thorough revision much has been added. The chapter on suppurative and inflammatory conditions has been enlarged with a description of the causative agent of epidemic cerebro-spinal meningitis; that on tuberculosis with a summary of our knowledge of the acid resisting bacilli that are in many ways allied to bacillus tuberculosis, with a description of the more important pathogenic streptothrices; to the chapter relating to the infections of the intestinal canal a summary of the new work on dysentery with a description of the micro-organism, now believed to be the cause of that disease, has been added; and the comments upon immunity have been revised so as to conform with the recent views on the subject as based upon the fundamental researches of Ehrlich and Morgenroth, Bordet, Buchner and others.

For a general knowledge of bacteriology, we do not know of a work better adapted to the needs of the student or practitioner.

THE CARE OF THE TEETH. By Samuel A. Hopkins, M.D., D.D.S., Prof. of Theory and Practice of Dentistry in Tuff's College Dental School. New York: D. Appleton & Co., Pub., 1902.

This little book of 150 pages contains much helpful information relative to the care of the teeth. Subjects treated are as follows:

History of Dentistry; Uses of Teeth; Cause of Decay; Predisposing Causes—Lack of Exercise; Food; Eating Slowly; Irregularities; Other Mouth Disturbances; Prevention of Caries, or Decay; Brushing, Mouth Washes, etc.; Toothache and the Teeth of the Poor; Anatomy.

The book is designed not only for the physician and dentist, but for parents, and ought to be productive of much good.

SOCIETY

CENTRAL MICHIGAN DENTAL ASSOCIATON.

The semiannual meeting of the Central Michigan Dental Association will be held at Ionia, Mich., October 1st and 2nd next.

P. L. CAMBELL, Secy.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

Officers for the ensuing year are:

Henry W. Morgan, president.
W. T. McLean, vice-president.
N. S. Hoff, treasurer.
J. H. Kennerly, secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

Officers elected are as follows:

C. A. Meeker, president.
B. L. Thorpe, vice-president for West.
J. A. Libbey, vice-president for East.
J. A. Hall, vice-president for South.
J. P. Root, secretary and treasurer.

DELTA SIGMA DELTA.

At the annual meeting of this fraternity, held in Niagara Falls, July 29th, 1902, the following officers were elected:

G. E. Hunt, S. G. M.
G. H. Wilson, S. W. M.
G. N. West, S. S.
G. B. Perry, S. T.
H. P. Carlton, P. G. M.
Frank Holland, S. H.

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. Rivenburg is located in Bangor, Mich.

Dr. H. G. Butcher has located in Urbana, O.

Dr. G. W. Harness has located in Marietta, O.

Dr. J. L. Tooker has located in Bronson, Mich.

Dr. Will Goldsmith has located at Ottumwa, Ia.

Dr. L. L. Howell, Riverhead, L. I., died August 4th.

Dr. F. M. Cooper has opened an office in Marshall, Mo.

Dr. Walter Crego has opened an office in Saginaw, Mich.

A good opening for a dentist at Hankinson, N. D., so it is said.

Dr. Pierce, formerly of Hillsboro, N. D., has located in Fargo.

Dr. Charles McLean has opened a dental office at Lake Linden, Mich

Dr. L. W. Curtis, of Rochester, Mich., has located at Lake Linden, Mich.

Dr. R. D. McBride, of Dresden, Germany, has been a recent visitor in the United States.

Dr. M. A. H. Jones and Miss E. F. Barnett, of Iowa City, Ia., were married July 30, 1902.

Dr. J. H. Coyle, of Thomasville, Ga., has been appointed a member of the state examining board by Gov. Chandler.

Dr. J. B. Dewey, of Oelwein, Ia., has accepted the position of demonstrator in the Dental department, University of Iowa.

Beware.—Many dental office robberies are reported from various parts of the country. We warn our readers to take every precaution to guard against such offenders.

Married.—Dr. A. W. Harlan, Chicago, and Dr. Mary A. Gallup, Boston, both well known dentists, were married July 26, and are spending their honeymoon abroad.

Dental Office Burglarized.—The office of Dr. A. L. Lambert, Dayton, O., was burglarized August 6th, and a considerable quantity of gold foil and scrap was stolen.

Dr. W. H. Dorrance Resigns.—Dr. W. H. Dorrance, who has for twenty-one years held the chair of Prosthetic Dentistry in the University of Michigan, has resigned his position.

New Scheme for Thieving.—Recently in Chicago two boys visited dentists' offices, and while one was being treated for imaginary toothache, the other stole everything of worth he could lay hands on.

Dentist Drowned.—While attempting to rescue Miss Ruby Adams, of Toronto, who fell accidentally from a boat into Niagara river, and was drowning, Dr. Howard Gray, of Tonawanda, was also drowned.

Gone Abroad.—Among those who have gone to the Stockholm meeting are: T. W. Brophy, H. J. Goslee, J. W. Wassall, Chicago; H. A. Smith, Cincinnati; W. C. Barrett, Buffalo; M. W. Foster, B. Holly Smith, Baltimore; F. M. Smith, Boston.

Sues Dentist for $10,000.—Dr. E. C. Reiss, Terre Haute, Ind., has been sued by a patient for $10,000. The complaint is that he used a pair of unclean forceps in extracting a tooth, and that a loathsome disease was contracted thereby. Dr. Reiss says the woman's mouth was badly afflicted when she called, and before doing the work, called a physician in to examine it.

A Migratory Dental Society.—At the recent meeting of the Virginia State Dental Society it was suggested that the state be divided into three sections, and that the annual meetings be held alternately in the selected districts. A committee was appointed to investigate the matter and report. It was thought that by this means a larger membership could be built up. Ohio tried this scheme with success a number of years ago.

Dentist Will Build Palatial Residence.—Dollar Island, Pushaw, Me., long the object of envy of Bangor men who have sought repeatedly and in vain to purchase it for summer cottages, is at last to be occupied. According to rumor, its owner, Dr. A. J. Abbott, of Germany, who inherited the property from his father, is to build a palatial summer home there, one that will make the pond famous all over the state. Dr. Abbott, who is still a young man, has gained wealth and prominence through the practice of his profession in Berlin, where he is court favorite and the dentist to royalty and nobility.

Blood Poisoning from Infected Instruments.—Dr. R. C. Young says: The one thing that impressed the necessity of asepsis upon me was a case of blood-poisoning that I had myself. I treated an abscess, and happened to have a small abrasion on one of my fingers. After finishing the case and washing my hands I was evidently infected. That night I suffered intensely with pain, and within the next twenty-four hours large red lines appeared on my arms, accompanied by considerable swelling. It was a plain case of blood poisoning, and I am confident that quick treatment and a good constitution saved me.

Resents the Charge of Plagiarism.—Dr. Albert H. Peek, dean of the Dental department of the Illinois State University, has brought suit for $10,000 damages in the circuit court against Dr. Cassius C. Rogers. Dr. Peck delivered an address at the June meeting of the American Dental Association at Saratoga, N. Y., and in the July number of the Journal of the American Medical Association, it is said, Dr. Rogers charges the plaintiff with having taken the substance of his address from a lecture delivered by Dr. Rogers last October before the students of the Chicago Dental School. Dr. Peck avers that he delivered the same address that he gave at Saratoga before the students of the Dental school of Northwestern University in April, 1900, and that the charge made by Dr. Rogers is false.

A Word of Caution.—Dr. Chas. A. Meeker says: I was bleaching a central incisor for a lady, using 25 per cent. pyrozene, and in using the handglass the patient accidentally knocked off my bracket table the bottle containing the pyrozene, which fell upon her dress. Knowing that pyrozene is a rapid bleaching agent on wools and similar fabrics, I immediately seized a bottle of alcohol, saturated a napkin with it and wiped off the pyrozene with the alcohol. There were no stains that I could see, no bleaching, and I went on with my work of bleaching the tooth. The sun was shining brightly through my window, and noticing a little smoke I looked down and found the skirt in a blaze. In two or three seconds a hole some three inches in circumference was burned in the dress before I could put it out with my hands. That was not spontaneous combustion, but spontaneous ignition, and just what it was due to I do not know.—*Items.*

Broken Appointments Not Paid For.—A dentist in San Francisco sued a young man to collect a bill for $80, which included charges for time lost when the patient failed to keep his appointment. The defendant claimed that he was a minor at the time and could be sued only for necessary things. The judge gave the judgment for $35 to cover the work actually performed, holding that a minor could not be held liable for broken appointments. We think if the dentist had sued the boy's father or guardian the whole bill could have been collected, as this precedent has been established in many states. Your editor collected a good sized bill against an estate some three years ago, which included several charges for broken appointments. The judge in this court usually cut down claims, but he allowed these charges without question. The sooner dentists impress upon the community the fact that their time is valuable the better it would be for the profession.—*Digest.*

Illinois State Board Upheld.—Graduates of the German-American Dental College are not competent to receive licenses from the State Board of Dental Examiners. So decided Judge Chetlain August 9th in dismissing the petition of Etienne Stump, a graduate of the German-American College, asking for a writ of mandamus to compel the state board to grant him a license. Judge Chetlain scored the college severely in rendering his decision. He was particularly severe with Dr. Fritz W. Huxmann, the dean of the dental school. Stump was refused a license by the state board last April on the ground that the German-American College is not an institution of sufficient standing and repute to warrant it. Judge Chetlain said in effect that the affairs of the institution were conducted in a haphazard manner, and when the school was asked for a book containing the names of its students who had matriculated the book was not produced. In closing, Judge Chetlain said the verdict by any disinterested person would be that the chairs of the institution were not filled by the proper persons and that its history did not redound to its credit.

PUBLISHERS' NOTES

During the meeting of the National Dental Association, at Niagara Falls, several of the dental manufacturers met together informally and decided to hold an Exposition on a very large scale in the city of Philadelphia, early in 1903. At this meeting it was stated that but from ten to twenty per cent of the dentists of the United States are in the habit of attending dental society meetings, and it is the larger precentage the exhibitors intend to reach. While the Exposition will be national in its character, the manufacturers realize that it will draw principally from the country surrounding the city where it is held, and it is proposed that Philadelphia be but the first of several large cities to be visited.

The Exposition is intended primarily as an advertising proposition, but it will nevertheless prove of inestimable benefit to the profession at large. It is an acknowledged fact that the exhibitor is one of the profession's best sources of practical information, and many men attend dental society meetings that they may not only derive benefit from the papers, discussions, and clinics at the meetings proper, but also from the exhibits as well.

Many dentists are prevented from attending society meetings because they are not "sufficiently urged," or because they would feel out of place in a gathering composed largely of dental society members. This latter condition may be due to modesty or to the fact that the dentist in question is an advertiser, and advertising dentists are never welcome at society meetings.

This class of dentists will accept the invitation of dental manufacturers, and will be benefited by their display.

Aside from the mere exhibition of dental good, the manufacturers are engaging clinicians from the professional ranks to exploit their wares, and are making every effort to interest the progressive dentist.

The management and advertising of the coming Exposition is in the hands of acknowledged experts, and without question the result will be of benefit to both the dentists and the manufacturers.

Though it is some months yet before the Tri-State Dental meeting (Ohio, Indiana and Michigan), we presume suggestions are in order at any time.

If the dental profession can get along without dental displays, why would it not be a good idea to charter a large lake boat with orders to pick up passengers at Cleveland, Toledo and Detroit, and cruise as far north as Mackinac or Sault Ste. Marie, or possibly through the beautiful Georgian bay?

A program could be arranged so that the pleasure of such a trip in the way of scenery would not interfere.

The improved appearance of the DENTAL SUMMARY is creating favorable comment, not only from the dental profession, but from advertisers and dealers in dental goods. The profession is receiving the best of reading matter; the second named class have never had their advertisements handled so skillfully, and as a result of this skillful handling the dealers are reaping the benefit of an increased interest in the goods advertised.

The writing, designing and handling of advertisements is an art in itself, and the modern style shown in the pages of the DENTAL SUMMARY is the result of several years' close study of this art.

The publishers of the DENTAL SUMMARY permit the use of its pages for exploiting first-class goods only, and are urging its advertisers along the road of good advertising of these good goods. Good advertising includes good paper, good ink and good cuts, and our good advertising is having its effect all along the line. Our style and modern progressiveness is being copied, feebly in most cases, to be sure, but to such an extent as to be indicative of an awakening.

The DENTAL SUMMARY does not care. If the year 1903 brings forth better dental publications; better in reading matter; better in advertising matter; better in looks; the DENTAL SUMMARY will feel well repaid for its efforts and will strive to set another pace.

The Cleveland Dental Mfg. Co. is advertising a lathe-head that is beautiful to look at and a pleasure to use.

J. M. Ney & Co., the well-known gold manufacturers, are following the advertising policy of using full pages continuously and changing copy with each issue.

Their advertisements are worth looking at.

What is acknowledged to be the best looking dental journal advertisement in the field has fallen to the DENTAL SUMMARY for exclusive use in its pages.

We refer to the Lewis Cross Bar Vulcanizer advertisement of the Buffalo Dental Mfg. Co. The Vulcanizer is just as good as the advertisement.

The man who advertises likes to know that his advertising pays. The publisher of the advertisement likes to have the man who advertises know that his advertisement pays. The reader of the advertisement does not care one way or the other, but he confers a favor upon all parties concerned when he mentions the name of the publication where an advertisement is seen.

In writing our advertisers, please mention the DENTAL SUMMARY.

THE DENTAL SUMMARY

VOL. XXII OCTOBER, 1902 No. 10

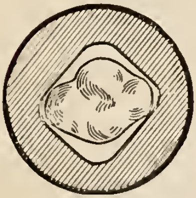
CONTRIBUTIONS.

SUGGESTIONS TO CROWN AND BRIDGE WORKERS.

BY O. H. SIMPSON, D.D.S., DODGE CITY, KAN.

While there are many new and original features to this system, the cup and holder are applicable to all other crowning systems, principally the Hollingsworth.

The advantages of this cup and holder are many. Saving of time, simplicity, free from contamination, and adaptability to the many conditions that arise. I will not attempt to illustrate all the possibilities, only a few cases that occur in every day practice, thus enabling the operator to see wherein it is applicable to all other well known methods used by crown and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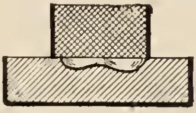
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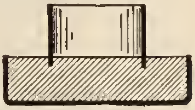
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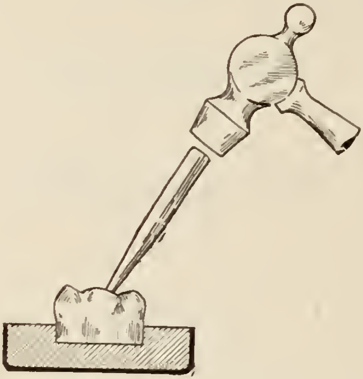
bridge workers. It is presumed that all dentists are familiar with the Hollingsworth system, or any system containing cusp buttons.

TO MAKE BICUSPID AND MOLAR CUSPS.

To make bicuspid or molar cusps, place button on molding plate, oil with kerosene to prevent wax from adhering to button. Fill cup with expressman's sealing wax (it is quite important that you use this grade), place cup in holder, holding cup upwards, turning blow pipe flame on all sides until wax is thoroughly softened. Guard against wax igniting by holding flame high; stamp over button, being careful to get button in center of cup. (See Fig. 15.) Sufficient quantity of wax should be used to afford a surplus. If the button was properly oiled it can readily be dislodged, leaving a sharp impression



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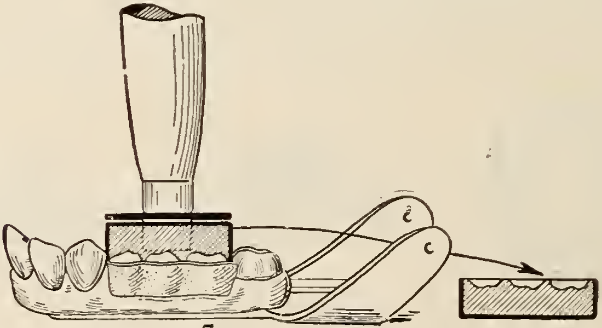

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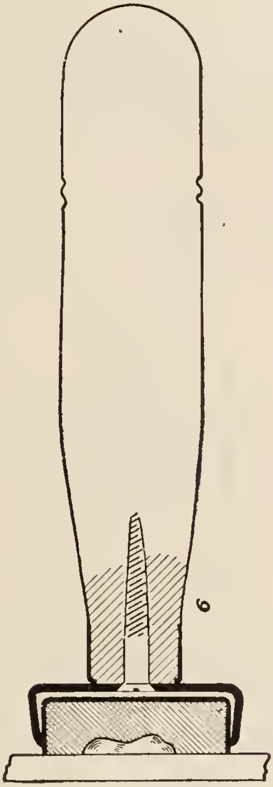
with square edges; flanges of cup confine the sealing wax, making it hug the circumference of button closely. If band and button are not the same shape, band can now be placed over impression the way it is expected to fit; scribe with small instrument on face of sealing wax the exact shape of band. (See Figs. 1 and 2.) The entaglio, or impression, can be enlarged to line with engine bur, making button and band exact shape.



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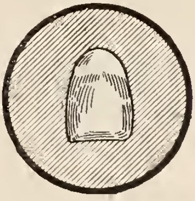

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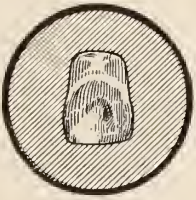

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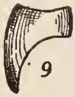

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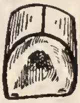

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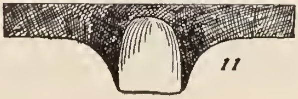

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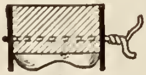
TO CRIMP, SHRINK, EXPAND, FILE OR GRIND A BAND AFTER IT HAS BEEN FITTED TO THE ROOT.

Heat and imbed neck of band in cup of sealing wax as in Fig. 3. In this way the fit of the neck is not changed. If in soldering cap on band, solder is flowed accidentally into cusps, rendering it too rigid for patient to bend while obtaining bite, band of crown can be imbedded in sealing wax as in Fig. 4. Cusp or cusps can be driven or bent in with punch without risk of changing shape of crown.

TO MAKE CONTINUOUS GRINDING SURFACE FOR BRIDGES.

After buttons are placed between the abutments and articulated with occluding teeth, oil buttons, heat wax in oblong cup, force carefully over grinding surface (see Fig. 5), they can now be removed to molding plate without destroying their articulation. Place thin coating of moldine on molding plate, stamp cup with buttons in place on moldine. Remove cup, leave buttons attached to moldine; they will occupy the same relative position they did on the articulator. Trim surplus



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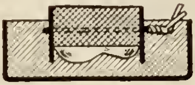

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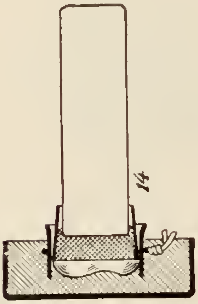

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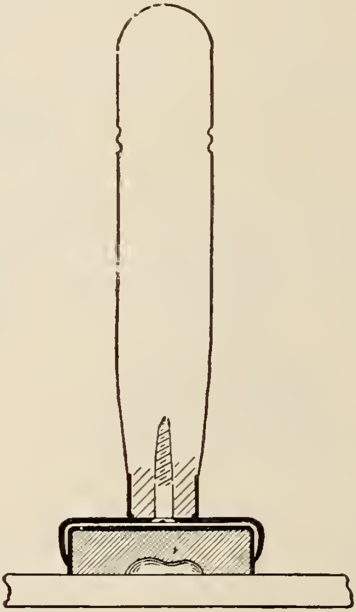

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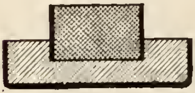

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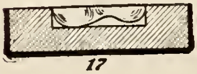

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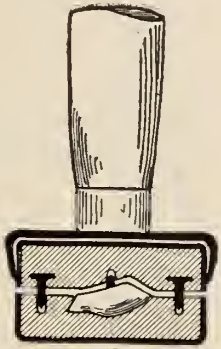
moldine away from buttons, rewarm wax in oblong cup, force over buttons as before, allow edge of cup to come in contact with molding plate (see Fig. 6); remove buttons and swage grinding surface in sealing wax in cup.

GOLD CROWNS FOR ANTERIOR TEETH.

Take measurement of root to be crowned, cut strip of gold the length of the circumference of root and as broad as the desired length of crown; select artificial tooth the proper length and width to fit the space; oil tooth and imbed in sealing wax flush, cool wax and remove tooth. Lay strip of gold across the impression of the artificial tooth (see Fig. 7), force it into the impression with soft wood punch. Swage later with unvulcanized rubber under wood punch, this being preferable at this time to beeswax, as it does not bend gold over edge of impression, creating a crease in band which is undesirable and would have to be worked out later. Remove and cut band (see Fig. 11), bend ends back, forming circle, and solder (see Fig. 9). It is now ready to be adjusted to root and articulated. Remove carefully from root, fill shell with sealing wax or plaster of paris as in figure 10. Carve wax or plaster on lingual surface, natural tooth form; oil wax filled crown and imbed lingual surface of crown in cup of softened sealing wax as in figure 8. Remove crown and stamp up lingual surface in depression. In this way a shell crown can be made true to nature, being more artistic than a flat back.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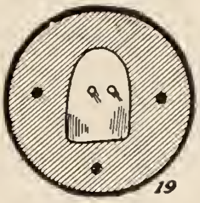
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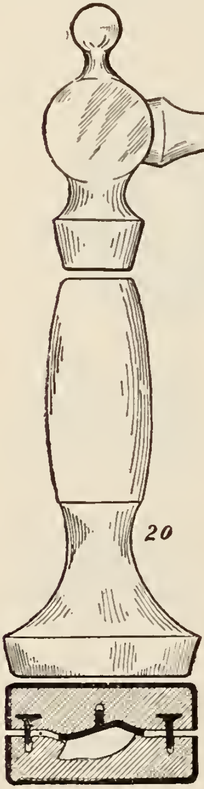
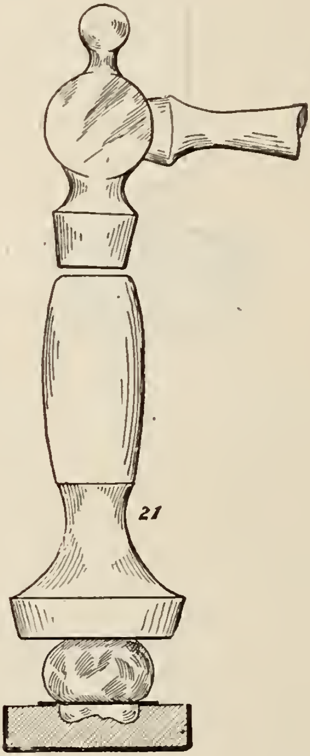
TO MAKE BANDS FIT CUSPS ACCURATELY.

Stick moldine on flat surface of button about one-quarter of an inch thick, trim moldine with sides perpendicular the exact shape of the circumference of the button, wrap No. 36 annealed copper strip ⅜ inch broad twice around moldine and button, as in figure 12. Hold with finger or bind with wire to prevent recoil of copper strip; force this into cup of softened sealing wax, grinding surface of cusps down (see Fig. 14). Remove moldine, leaving button in the bottom.





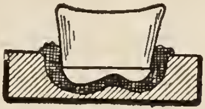
You now have a box the exact shape of your button. Place band that has been previously fitted to the root in this box, the way it is expected to fit on button. Fill band about one-fourth full of moldine, whittle wood plunger slightly smaller than band, place on moldine and give it one or two slight blows with hammer. This will expand the lower edge of band to conform exactly with circumference of button. Soften sealing wax; remove button, stamp up cusps to this button as in figures 15 and 21.

TO MAKE BUTTON FIT BAND.

Very often the operator experiences great difficulty in obtaining a button to fit a square band, which is very apt to be the case when the teeth have changed their original position. In such case fit band to root and adjoining teeth; remove carefully; fill band with moldine; oil band, and force band and moldine into a cup of softened sealing wax about ⅛ of an inch, as in figure 16. Remove band and moldine. This leaves box to form the circumference of cusps the exact shape of band (see Fig. 17). Cusps to fit square band can be formed and swaged as in figures 1 and 2.

FOR MAKING BACKINGS.

Soften wax, imbed tooth to be backed about two-thirds; cut pins off about one-half; drill three small holes at opposite points in surface of wax, half way between tooth and edge of cup, place in these holes small tacks, heads up (Fig. 19). Oil surface of sealing wax and that portion of the tooth exposed; place another cup of wax in holder; soften and force over tooth and tack heads, being careful to see that the flanges of cups come together. (See Fig. 18.) Wax from upper half will form around tack heads; when halves are separated tacks will come away with upper half serving as guide pins. Pry apart with knife blade. Enlarge holes in upper half made by tooth pins with an engine bur to prevent tooth from being cracked or pin becoming bent when the two halves are forced together.



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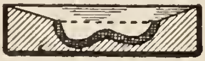

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Anneal backing; punch holes; place backing on tooth and force the two halves together by striking punch held on upper half. (See Fig. 20.) Anneal, reswedge and backing can be made without crimps.

TO SAW OUT ANTERIOR SURFACE OF SHELL CROWN FOR PORCELAIN INLAY OR OPEN FACE CROWN.

Fill crown with sealing wax; insert stick to be used as handle. Crown can be sawed or filed without changing its shape. Facings when too small to be held in fingers can be readily grounded by attaching to the end of stick with small quantity of sealing wax. Edges of cusps can be filed to fit band more readily by being attached to a stick in like manner. (Figs. 24, 25 and 26.)

TO SWAGE CUSPS.

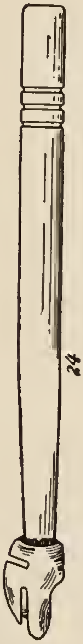
Place ball of moistened beeswax between gold and punch, striking punch three or four sharp blows; anneal gold often; use gold for cusps not thicker than 30 gauge, re-enforcing with solder.

TO POLISH CROWN.

Fill about one-half full of softened sealing wax, insert stick for handle, allow to cool. Crown can now be polished without stretching neck. Remove crown by holding in flame, allowing it to drop off, leaving wax on stick. Burn wax in crown by holding in the flame, afterwards drop in a pickle.

TO CARVE MOLAR OR BICUSPID CUSPS.

Prepare root and adjust gold band, leaving about the thickness of two sheets of blotting paper between edge of band and occluding teeth. Fill band with plaster of paris. Be careful to have patient close jaws natural, hold in place until plaster is hardened. Remove band and plaster, carve cusps, being careful not to destroy the articulation while carving. After cusps are carved, take small exploring instrument and make crease in plaster at the edge of band, as in figure 22. Soften sealing wax in cup, wet plaster paris cusps, forcing cusps into softened sealing wax, imbedding one-half the band. Give crown rotary motion, so that impression in wax will be larger than crown by one thirty-second of an inch all round. Remove crown and allow wax to harden. Warm small quantity of sealing wax in spoon and fill this impression level full as in figure 23. Wet plaster cusps again and force into this softened wax, allowing the surplus to squeeze out between wall of hardened wax and crown band. By doing this the second pouring of sealing wax is made to hug the circumference of band and cusps and show the line drawn at edge of band in plaster of paris. Trim off with knife all surplus wax down to line. Swage cusps as in figure 21.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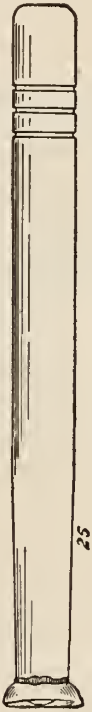
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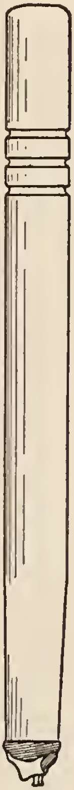
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SOME FACTS AND CONCLUSIONS REGARDING EROSION.*

BY HENRY BARNES, M.D., CLEVELAND, OHIO.

We recognize two distinct forms of erosion, or causes therefor, namely: Systemic acid erosion, or erosion caused by acids formed within the system, and external acid erosion, or erosion caused by acids taken into the mouth, notably the acids of the lemon, orange and grape, as well as those acids taken in the form of medicine. Erosion is frequently accompanied by abrasion, and is often misnamed. We will call it abrasive erosion for convenience. Our purpose is to consider certain facts respecting its peculiar manifestations, as exhibited upon the surface of the teeth, with an explanation as to the causes thereof. Systemic erosion may be found upon the buccal and labial surfaces of the teeth, also upon the occlusal and incisal edges. The disease is rarely found upon the lingual surface of the posterior teeth, but is sometimes found upon the lingual surfaces of the superior anterior teeth. Its greatest destruction is most marked at the angle of the jaws, superior and inferior.

The exhibit marked "A" is a cast of the teeth of a gentleman aged forty years.

Commencing with the first right superior molar, we find erosion at the gingival margin. The second superior bicuspid is quite badly eroded upon its buccal surface, and somewhat upon its occlusal surface. The first right superior bicuspid is missing. The right superior cuspid is eroded upon its labial surface, extending to the cusp, and has a large filling to restore portion lost by erosion. The superior lateral is badly eroded upon its labial surface and extends to the incisal edge, where we find abrasion. The right and left centrals are eroded over their entire labial portions and incisal edges. The left lateral is badly eroded upon the labial surface, extending to and involving the incisal edge. The left cuspid is eroded over the entire labial surface and involves the cusp. Note the absence of erosion upon the left superior bicuspids and molars also upon the second right superior molar. The inferior teeth present the same general features, only more marked, as in the right bicuspids, right and left cuspid. There is no erosion on the right molars, left molars and left bicuspids. Note the erosion upon the occlusal surface of the second right superior bicuspid and its abrasion. When the models are occluded there is over-bite of the superior teeth, and when the lips are closed a pocket would be formed, extending over and including all the eroded surfaces of the inferior teeth. (Capillary attraction will account for the flow of the fluids to and erosion upon the gingival ridge of the right superior molar and second bicuspid.)

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*Read at Northern Ohio Dental Society, June, 1902.

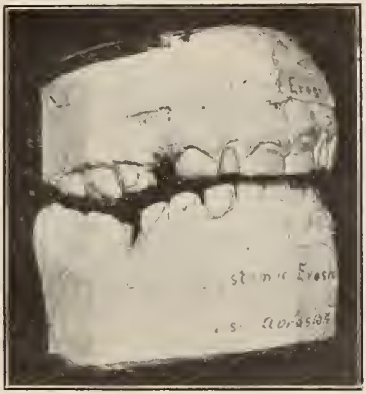

Exhibit A.

This case is interesting from the fact that it presents so many of the peculiar manifestations of the disease of a systemic character. Also presents some abrasive features.

Here are presented certain facts for which there must be a cause. Why are certain teeth diseased and certain others free from its markings in the same mouth? Years ago we made this declaration: Decay is most prevalent upon that side of the mouth upon which the patient habitually rests the body during sleep. This was received with much doubt at the time.

We are not now discussing caries, but this is introduced because it has a very important bearing upon our subject. I now offer the same reasons for the peculiar manifestations as presented in erosion as for that in decay. I do not expect you to agree with me now, but I feel certain, from long continued investigation of cases, that this is a fact, and so declare it. I am convinced that a careful examination of cases as they present themselves will convert you as it has myself.

Since commencing to write this paper I have read a resume of the paper of Dr. Michael, of Paris, read before the Stomatological Society of New York, in which he claims the cause for the greatest destruction of tissue at the angles of the mouth is due to the acid secreted and exuded by the mucous glands found at this point. That the buccal fluids exuded by these glands at certain times are acid is certain, and it follows that as this acid is exuded and the teeth bathed in it, as they must be during sleep, destruction must follow as a natural consequence.

The gentleman whose case is here exhibited by case marked "A," is a right side sleeper, and all the teeth affected are those which would be immersed in the fluids of the mouth at this time. A patient sleeping upon the right or left side will position the head to the right or left of the line of the body and downwards. This position upon the pillow will cause certain surfaces of the cheeks and lips to be drawn tightly against the opposing surfaces of the teeth, and certain other portions will be pushed from the opposing surfaces, forming a pocket. Into this pocket will flow the oral fluids, and, if acid, are during the hours of sleep becoming more and more vitiated, due, very likely, to the growth of bacteria, or their products. This pocket has its most dependent portion at the angles of the mouth, and this, we believe, to be the reason for the prevalence of erosion on these surfaces.

The erosion of the occlusal surfaces is caused by the teeth being held slightly apart during sleep, and by capillary attraction. The fluids would be held here and cause the destruction noted. The cause for erosion, as appearing on individual teeth, is probably due to the irregularities or bays on the surface of the lips and cheeks, which hold the fluids against the teeth at these parts.

External acid erosion presents its most destructive features upon the superior anterior teeth. Lemon and orange sucking and grape stoning are responsible for most of the destruction at this point. During the action of extracting the juice from the fruit, and also in stoning grapes, the upper lip is forced from the teeth, forming a pocket or vacuum into which these acids rush, and not being neutralized, as in other portions of the mouth, dissolve the enamel substance very rapidly.

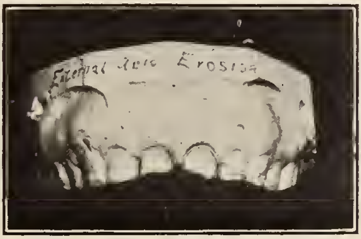

Exhibit B.

A gentleman sixty years of age presented for examination, I said to him, "You are a great eater of grapes, you stone the grapes in your mouth and you are left-handed." He said, with much surprise, "It is all true, but how do you know it?" "It is a very plain case," I answered. "The enamel is dissolved from the surface of the left central and lateral incisors, and also from the cuspid, which indicates the use of the left hand." This case presented a greater destruction of tooth tissue than I have seen in any other.

Exhibit "B" is a case of grape stoning, and shows very plainly the action of the acid.

When the erosion is due to acids administered as medicine the destruction is found at or about the gingival margin. A few or all of the teeth may be affected, and it may take years to fully develop.

The correction of erosion due to fruit or mineral acids is the easier, because the cause is more readily controlled. However, the erosion from acids administered as medicine is usually so far developed, before the patient becomes aware of the fact, that mechanical means are often necessary to repair the damaged portion. It is not improbable that the latter trouble may first commence from external acids and then receive an impetus in its destructive feature from systemic acids.

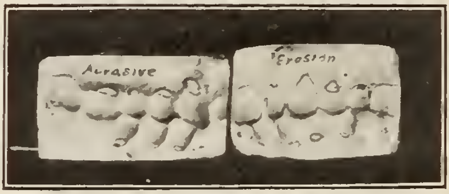

Exhibit C.

Exhibit "C" is a case of erosion and abrasion combined, and, for a means of identification, is here named abrasive erosion. The gentleman is about forty years of age, and has for 15 years used a brush and powder every day.

These exhibits are typical of the different forms of erosion, and show clearly the cause for their presence. If we had a hundred cases we could not present them better. A large number of tests have been made of the fluids of the mouth, and a very large percentage of the cases, whether presenting erosion or not, show the buccal fluids to be acid and the sublingual fluids to be alkaline. Of course, there is a difference in degree, but so nearly uniform is the result that we are led to the belief that this may be a normal condition.

Summarizing the results of these investigations, we say: Erosion is clearly the result of an acid formed within or taken into the system, and in which the teeth are bathed.

First differentiate the disease, or cause thereof, and so far as possible apply the remedy.

The flow of the acid within the oral cavity is due to capillary attraction.

The most destructive period of systemic erosion is during the hours of sleep, and the greatest destruction is found on that side of the mouth upon which the patient rests the body habitually during sleep.

External acids show their destructive effect upon those teeth which come into direct contact with the acid, and they are probably effected by systemic acid erosion as well.

Abrasive erosion is due to acid erosion and a too vigorous use of the tooth brush and powder.

Of all remedies so far used locally, none have given the satisfaction which is to be had from the continuous use of "Phillips' Milk of Magnesia."

It is hoped that this troublesome disease which has for so long a time baffled the skill of the profession, may be more clearly understood and intelligently treated. It will only be by careful investigation of the cases as they present, coupled with instruction for its correction, that we may be able to successfully cope with it.

THE APPLICATION OF DRUGS IN DENTISTRY.*

BY FRANK E. CROSBY, PH.G., D.D.S., FRANKLIN, PA.

In presenting this subject to you I will endeavor to mention only what seem to me to be the most practical points in relation to the drugs we use in our practice and to mention a few of the newer ones of which we are hearing.

You all know that dentists of to-day are using more drugs than they did twenty years ago or ten years ago. In fact, almost every day we hear of some new drug or combination of drugs recommended as superior to anything ever before used for its purpose, and while I believe that these new drugs should be carefully investigated before using, I think we should not ignore them entirely. It is true that dentists have been saving teeth for many years, yet it is also true they have not saved all that they could have saved, nor have they done so with as little pain, delay and inconvenience to their patients as they are now able to do by means of a more extensive knowledge and application of drugs, and with this ingress of an increased Materia Medica into our profession, the more we know of the properties, physical, chemical and physiological, of the drugs we use, the better equipped are we to serve our patients with the best.

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*Read at Lake Erie Dental Society, 1902.

It seems as though the age of stoics is passing away, for the number of people who do not believe in suffering pain of any kind, if there is any way of avoiding it, grows every day, and I believe that even in the small operations if we can use some method or some drug that will accomplish as good results as a more heroic method, we owe it our patients to practice that method or use that drug.

And this leads me to speak of the

DRUGS USED IN THE PREPARATION OF CAVITIES FOR FILLING.

Dryness and sharp instruments do a great deal to lessen the pain of excavation, but even with these we very often are compelled to look for something more. Cataphoresis is an old method highly praised by a few, but by the majority it is looked upon as a back number, and as you are all familiar with it I will not describe it.

Painless excavation has been accomplished in some cases by the use of solutions of cocaine in various menstrua. There seems to be a considerable uncertainty about its action however, which is probably due to the varying condition of nerve fibrils and tooth structure in different patients, for while in some cases it works admirably in others it gives little or no relief. The cocaine solution travels through the dentinal tubuli by osmotic action and in order that this action may take place rapidly it is necessary that the solution be of a less density than the fluid in the tubuli or vice versa, as fluids of a like density osmose very slowly.

I do not know that the density of the fluid has ever been calculated, but experiments seem to have proven that a thin, light liquid used as a solvent for the cocaine works best. Some operators have used glycerine, others a mixture of carbolic acid and cocaine, but the preparation which seems to find most favor is an ethereal solution of cocaine hydrochlorate. While this salt is insoluble in ether alone, a mixture of ether with alcohol, about 1 to 3, will dissolve it, and this preparation is upon the market under various names. A solution of cocaine in acetic ether also does well in some cases. A large quantity of the cocaine salt is unnecessary and a disadvantage as it increases the density of the solution. A small piece of spunk or cotton pellet is saturated in the solution and placed into the cavity, which is then closed with a piece of unvulcanized rubber and put under pressure for from two to five minutes, after which time excavation may often be done with little or no pain to the patient.

STERILIZING THE CAVITY.

Having prepared the cavity, we want to make it sterile first, and the drug most commonly used is carbolic acid, which answers the purpose very well, but has a few disadvantages. Its coagulating effect is very limited; it causes considerable pain in a sensitive cavity upon application, and, having water in its composition, it adds moisture to a tissue which we want as near absolutely dry as possible. For this purpose, as for many others, I use a saturated solution of thymol in alcohol (1 to 1). It is said to be ten times more germicidal than carbolic acid, has great penetration, causes little pain upon application, soothes the pulp, is colorless and of agreeable odor, and instead of adding more water to the dentine, the alcohol acts as a dehydrating agent and aids in drying it, doing away with the subsequent use of alcohol, and the non-conducting varnish may then be applied.

I have used one composed of tri-nitro cellulose, or gun cotton, dissolved in amyl acetate. It is very similar to the lacquer used for varnishing brass and other metal work to prevent corrosion. The solvent evaporates very quickly and it forms a very impervious non-conducting coat. It has a soothing action upon the nerve fibrils and does not produce the stinging pain that the various gum varnishes do. A small disc of unsized paper dipped in it forms an excellent non-conductor where more than the varnish alone is required.

USE OF THE SILVER SALTS.

Decay in decidous teeth and very superficial caries are often checked by the application of some one of the silver salts, usually the nitrate. It has, however, the disadvantage of being very caustic and of staining any organic matter it touches. Several new silver derivatives have lately been introduced which should be preferred on account of their not possessing these faults unless used to excess. While they have decided germicidal, antiseptic and deodorant properties, and are destructive to all forms of bacterial life. There are several of these new preparations, but three in particular, viz., argorim, protargol and largin, seem to be the best.

They are all of a similar nature, varying slightly in the amount of silver in their composition. Five to ten per cent. solutions are very efficacious in fistulous abscesses, empyaemia of the antrum, and pyorrhœa alveolaris.

Distilled water must always be used in preparing the solutions, and it should be kept in dark blue or black bottles as light rays decompose the silver compound.

PULP CAPPING.

Passing now to cases requiring pulp capping, there are many formulæ of pastes to be placed under the cap, any of which serve well provided they are antiseptic and non-irritating. The success of the operation depends largely upon the proper adjustment of the cap, having it so placed to retain a body of the capping paste beneath it, yet relieve the pulp of any undue pressure. A very good formula is that recommended by Dr. James Truman, which consists of:—

Zinc Oxide.
Ol. Caryophylis.
Ac. carbolic.
Hydronaphthol.

Make into a paste.

The oxide of zinc and the liquids are worked into a moderately thick paste and a very little hydronaphthol added, just enough to give a noticeable change in color. A small quantity of hydronaphthol acts as a mild stimulant to the pulp and antiseptic, but if used in too great a quantity it is too irritating.

DEVITALIZING MIXTURES.

In devitalizing pulps with arsenic, difficulty is often experienced, the arsenic seeming to have no effect. I do not think it is a good plan to mix carbolic acid into an application for it coagulates the pulp tissue and produces an eschar which, while perhaps not sufficient to prevent the action of the arsenic, would certainly retard it.

Sodium or potassium hydroxide mixed with arsenic forms an arsenite which is taken up much more readily by the pulp, it being more soluble than arsenic, and for this reason Robinson's Remedy is often used in conjunction with it.

In regard to antidotal treatment in cases where arsenic has gotten out onto the soft tissues, the best remedy which can be kept always at hand is dialyzed iron. A pellet of cotton saturated with this and placed in the approximal space upon the gum will restore the tissue to health unless necrosis has begun.

TREATMENT OF PUTRESCENT PULPS.

In the treatment of putrescent pulps the first thing that we are impressed with is, of course, the odor. This is, as you all know, very disagreeable, but it may be converted into a comparatively pleasant one by saturating the canals with tincture of iodine.

The bad odor is caused by the sulfids present, and these are decomposed by the iodine, forming compounds which are much less offensive. The iodine has the effect of staining the cavity and obscuring a clear view, but this may be removed by a little common aqua ammonia, or sodium hyposulfite, which whitens the cavity again and permits a good light.

Iodine stains upon the face or clothing may be removed in the same way, but it must be done promptly.

In the after-treatment of these teeth the drug which of late seems to have outclassed all others is formalin, with which you are all familiar. It is a 40 per cent. solution of formaldehyde gas in water, the gas being generated by the oxidation of methyl (wood) alcohol.

One of its disadvantages is its great tendency to irritate the tissues when used too strong or for too long a time. This tendency is somewhat controlled by using with it a very small quantity of oil of cloves or cinnamon. These oils are greatly improved for dental use by age, as through oxidation and evaporation they become very bland and non-irritating. If the canals are merely wiped out and hot air applied, the 40 per cent. strength may be used, but in a very small quantity.

For dressings to be left in 24 hours or longer, the 2 per cent solution is best, and may be made from the stronger by taking one part of it to nineteen (19) of distilled water.

For an antiseptic and deodorant mouth wash, even a much weaker solution is effective, and will destroy the foul odor from a fetid antrum or diseased tonsils.

Formalin has a peculiar tanning effect upon tissue and preserves it remarkably. Stiffened paper points foced to the apex of roots when dry will carry the formalin solution (or any other) the entire length by capillarity, a cotton pellet wet with it being applied into the cavity.

For the anterior teeth where the essential oils might produce some discoloration, the solution of thymol, of which I spoke before, is very applicable. It has the advantage over the formalin solution of having no water in its composition, and this in an antiseptic is always an advantage. You all know that the requisites for bacterial growth are:—

1. Neutral or slightly alkalin medium.
2. Suitable temperature.
3. Food.
4. Moisture.

The first three conditions being usually present in the human mouth, when we eliminate moisture we have gone one step toward making the life of the micro-organism uneasy, and a tissue thoroughly dried comes pretty near being sterile.

[To be continued.]

COMPRESSED AIR IN DENTISTRY.*

BY B. E. SAUNDERS, D.D.S., ELYRIA, OHIO.

Compressed air has fittingly been called "The Infant Industrial Hercules," or "The Baby Giant." By its force, provided we had enough of it, we could move the earth. Barring electricity, it is without doubt the coming force in the manufacturing and building world. Its application to problems of dentistry has begun to receive attention, and in the near future a compressed air appliance will, I think, prove to be a necessary part of our office equipment.

It was about two years ago, while being treated for throat trouble by a physician who used a compressed air nebulizer, that the possibilities of compressed air in dentistry suggested themselves to me, and I commenced employing this agent in a series of original experiments, where its use has assisted me in more successfully treating cases which present themselves daily to the average practitioner. Not being fortunate enough to be located in a building which has its own compressed air plant, as many of the modern city offices have, it was necessary to construct one of my own. The parts were readily supplied by a dental supply house, and consisted of a metal tank 36 inches high, 18 inches in diameter, capacity 18 gallons, supplied with a gauge to denote the pounds pressure, and two valves, a supply valve and an exit valve. After the air leaves the gasometer by its exit it passes through a second valve called the controller, which by manipulating with a set-screw gives the required amount of pressure at your hand piece, in which is valve No. 3, which works automatically, at the discretion of the operator, thus keeping the air blast, at all times, under perfect control.

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*Read at Northern Ohio Dental Society, June, 1902.

The air compressor may be a hand instrument, as a large bicycle pump, or may be run by electricity or water pressure. I prefer the latter and have a Monitor water pump connected with the city water supply pipe. This gives a constant pressure of air in the tank of from 40 to 60 pounds. It is not necessary to have pump and tank in the same room, the neater plan being to have both outside the operating room, and a pipe leading from the tank to the controlling valve, which may be fastened to the wall in close proximity to the chair.

The many uses of this valuable agent in our practice readily suggest themselves. In the treatment of pyorrhea alveolaris it is invaluable. A blast of air can be directed into the pockets, inflating them and so rendering the tartar deposits along the root visible. They may then be removed accurately instead of fishing for them unsight and unseen. After the deposits have been dislodged they may be successfully driven from the pockets by a blast of air attached to an atomizer, and all pockets washed out and rendered sterile by an atomizer containing the favorite formulae solution of the dentist. I know of no greater help in the treatment of this disease than the air blast and a good atomizer with sufficient pressure to be effective.

In the treatment of that ever sensitive structure, dentine, I have found compressed air very reliable. Not being an enthusiast on the subject of cataphoresis, am not prepared to state how they compare, but do know that a blast of warm air from a hot air syringe directed into a cavity previously treated with an application of ether, or better, an ethereal solution of cocaine, gives amazing results. When I speak of a current of warm air I do not mean hot air, but air about 112° at the cavity. I believe, as does Dr. Black, that a too sudden drying of the tooth structure is liable to check it, and that greater harm than good is accomplished, especially in the cases of dead teeth.

In using warm compressed air it is necessary to consider the fact that expanding gases (such as air leaving the nozzle of a syringe) are cooler than when under constant pressure, and if using the metal coil immersed in hot water, or the electric coil, the air in the coil must be about 122° to produce 112° at the cavity. I have found this temperature to be best for the treatment of root canals and dead teeth. By the use of compressed air I think it is possible to more thoroughly disinfect and medicate a root canal than by any other method, as all portions are positively reached.

Fistulæ abscesses are easily treated, sterilized, dried, medicated and filled by forcing the agents employed in the treatment into the infected parts by a mild air blast.

Before taking impressions I usually spray the mouth thoroughly with a mild antiseptic, which removes the secretion of the mouth, and if the impression is to be taken with modelling composition, use the saliva ejector, and hasten the setting by directing a cold spray from the atomizer on the compound, assuring a more positive result. Compressed air is a substitute for the rubber bulb chip blower when preparing cavities, and a gentle blast into the cavity while the bur is in operation not only removes the debris, but prevents the tooth becoming heated. Also a constant blast while using the paper disk in finishing fillings prevents to a large degree the unpleasant heating, and allows the operator to work more rapidly.

After cleaning teeth, and in fact at the close of any operation, a warm spray from the atomizer containing a pleasant antiseptic, not only thoroughly disinfects the mouth, but removes the collections and debris, and leaves the mouth in a more pleasant condition than before the operation.

It is the most positive way to disinfect diseased lesions, and especially before and after extracting roots and teeth.

Not only is compressed air valuable in the operating room, but in the laboratory, where it is a substitute for the bellows, when using the blow-pipe for soldering and heating. The flow of air is so constant and steady that it is par excellence for soldering crowns or bridge work containing porcelain. Its use is so universal in the dental office that it seems to play an important part in nearly everything an ordinary dentist is called upon to do.

The instruments, tubes, sprays and apparatus are easily made by the dentist himself to suit special cases—the principles of its use are simple, the manipulation easy, and the results positive and pleasant.

RECREATION AND EXERCISE FOR PROFESSIONAL PEOPLE.*

BY C. D. PECK, D.D.S., SANDUSKY, OHIO.

Democritus said: "The force of the understanding increases with the health of the body. When the body labors under disease, the mind is incapacitated for thinking."

Gladstone said: "All time and money spent in training the body pays a larger interest than any other investment"; and to quote a modern teacher, President Elliot, of Harvard: "To attain success and length of service in any of the professions, a vigorous body is essential. All professional biography teaches that to win distinction in sedentary, indoor occupations, which task the brain and nervous system, extraordinary toughness of body must accompany extraordinary mental powers."

It is the natural tendency of nature, and especially of all animal creation, to protect itself, and it is worth the asking if life can be prolonged by physical exercise. To do this let us consider that the body is composed of a series of cells that are similar to the lowest forms of protoplasmic life, these cells are undergoing constant changes, go through a species of death, and are cast off to be replaced by newly-formed ones that may be said to exist in a state of activity after their formation, and are then followed by their death. This process is necessary to the maintenance in man, of: First, animal heat; second, nervous force, and third, muscular energy. For this process of transformation, man must consume due amounts of food; this is required for all three purposes. Probably we may have observed people who did certain tasks of physical or mental labor, without partaking of sufficient food, possibly working a whole morning with but a cup of coffee for breakfast; if this be done without eating sufficiently at other times during the day, the individual will be doing his work at the expense of the second, or nerve force, as we might say, "just working on his nerve."

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*Read at Northern Ohio Dental Society, June, 1902.

But for people who have good appetites, and who consume sufficient quantities of food, the presumption being that the digestive apparatus is in normal working order, they must have physical exercise in order to stimulate the natural bodily functions, and thereby cause the birth, growth and replacement of new cells that are constantly being produced by the secretory organs. If all tissues, organs and muscles of the human system get their proper share of the nourishment, it devolves on the individual to see that this be done, and it can be done only by using the muscles of the system, giving them vigorous action, that this nourishment be properly distributed throughout the entire system, every portion getting its share of the nutrition. Or it must be understood that it is liquid food in the blood that is referred to, and it is by its action that the blood, the vital fluid, is renovated and the tissues reinvigorated.

Exercise that does not call into action all of the organs and muscles will be one-sided or too excessive; that is, for some sets of muscles, which is true with nearly all sedentary people, and is certainly the case with those who follow our vocation. The life followed by attorneys, teachers, students, etc., nourishes and develops the brain, but at the expense of the other organs, which often results in constipation, digestive irregularities, sluggishness of the liver and biliousness. Have any of us ever heard of a dentist being bilious? Have any of us ever heard of a dentist who was not bilious? Well, perhaps there are some such dentists, but if so they certainly are subject to congratulation.

The increasing tendency to the division of labor and specialization in the professions causes great tendency to this lopsided development, and the necessitating of people who follow such professions taking special means to keep the physical system in health and normal condition. The division of labor also has a tendency to shorten the hours of employment, and this gives more time that may be and should be utilized for recreation.

In some localities efforts have been made to give the people systematic exercise, with the result that these people are happier and longer-lived. For instance, the average of human life in England is now thirty-four years, whereas a century ago it was twenty-eight years.

The gymnasiums that have been established in Young Men's Christian Associations, churches, etc., have been of vast benefit to the working masses, and those who belong to the so-called well-to-do classes have received great physical improvement from horseback riding, tennis, bicycling, golf and other sports, not to omit ping-pong.

It should be the purpose of those who follow sedentary occupations to use such exercise as will best aid the deficiencies of one's life occupation. If certain muscles receive habitually almost no exercise, the lungs and heart are lacking activity. Some intelligence should be used in selecting exercises that will set these organs to work. There are many systems nowadays that are presumed to be excellent for giving the required activity which professional and sedentary people require, and each and all of them in their lines are good, and if used with intelligence and persistency will be of great benefit.

If the business or professional man who lives one or more miles from his office will walk to and from his home, it will doubtless have a similar effect as that given by a washerwoman, who said that after she had been working hard all day, it rested her to spend an hour riding her bicycle.

Who of us after a day at the chair of tedious operating, and feeling so fatigued that he simply wanted to sit down and remain there, has not felt a sense of relief, even of restfulness, if he took a vigorous walk in the open air for half an hour?

With a quotation from Shakespeare, I will close:

"Though I look old, yet am I strong and lusty
For in youth I never did apply,
Hot and rebellious liquors in my blood
Nor did not with unbashful forehead woo
The means of weakness and debility
Therefore my age is as a lusty winter
Frosty but kindly."

SOCIETY PROCEEDINGS

NORTHERN OHIO DENTAL SOCIETY.

Combatting Pain in Dental Operations.*

DISCUSSION.

Dr. Jackman: I am convinced that cataphoresis is all right if rightly applied. I hope you gentlemen who have tried it and given it up will try it again. I have one of Dr. Price's outfits, and I am satisfied it will do just what he claims. I had a case in which I used it the other day at a time when I was late, and I found my patient waiting. I adjusted the rubber-dam, the cavities were on the proximal surfaces of the inferior central incisors, applied the current and left it on forty minutes because I wanted the teeth well anesthetised. There were three cavities in all, and I wanted to prepare all three cavities so that I could fill them at another time. I applied cataphoresis to one of them ten minutes longer before I succeeded in completely desensitizing it. I then prepared all three cavities (the third was a labial cavity) painlessly.

Last Saturday I filled these cavities with gold. I have cared for this lady's teeth for a number of years. They are exceedingly sensitive. I assure you we were both delighted to get such results.

Perhaps one-third of the people do not suffer any in having their teeth filled; one-third suffer some but the pain is bearable, but the other third are the ones who need and must have cataphoresis

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* Paper published in September number of The Dental Summary.

Dr. Ebersole speaks of using cocaine locally. I used to use cocaine a good deal locally, but I had so many patients who complained so much of the bad taste it left in their mouths that I gave it up. They would tell me they would rather have a rubber dam adjusted and bear the pain than that they should have the taste of cocaine left in the mouth.

Dr. Ambler: Cataphoresis is a success when properly applied and that I am using it yet.

Dr. W. A. Siddall: I have used successfully a number of times of late a one per cent. solution of chloretone, hypodermatically, for the purpose of extraction, lancing of an abscess, etc.

Dr. E. B. Lodge: I am a great enthusiast on the subject of cataphoresis. I have tried various measures in the past at different times, and have been greatly disappointed by the failures of these instruments to meet the demands of the case. First I had the Wheeler, then the S. S. White's, and lastly Dr. Price's outfit. The latter has been satisfactory in every respect, and I would not feel that I could do without it in my office. A few days ago I had a lady patient come to me who had need for an artificial crown, the natural one being badly broken down. There was no exposure of the pulp, which was very much alive. I employed cataphoresis with a perfect result. I succeeded likewise upon a second pulp the next day, greatly to her relief and delight, and she said that she would not dread pulp removals in the future.

I was expecting to hear Dr. Ebersole say something about the use of chlorite of ethyl, especially in case of alveolar abscesses. I think it is an almost invaluable aid in anesthetizing where you have to make use of the lancet.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

TEETH USED AS ABUTMENTS.

BY DR. H. J. GOSLEE, CHICAGO.

In the second class, where the tooth is to serve as an abutment for bridge-work, I am unreservedly and more strongly inclined to devitalize the pulp. In such instances, especially where the tooth is perfectly sound, more grinding is necessary in the mechanical preparation, and greater shock is consequently induced; the open ends of the tubuli thus denuded of the protection of enamel are exposed to the irritating action of the cement; the pulp is deprived of its normal external influences in being so isolated by the non-conducting properties of the intervening mounting material; the tooth is held as if in a vise and consequently deprived of the natural mobility afforded by the cushion of membrane surrounding it, and greater stress is imposed upon it. If the possibilities of irritation resulting from all other causes were not apparent, the continued unnatural influences of immobility and stress are great enough, in my opinion, to induce a degree of irritation which will usually terminate in the ultimate death of the pulp from strangulation and stasis.

Further, if the mechanical requirements in connection with properly preparing such teeth are carefully and conscientiously observed, so that a close adaptation of the crown to the neck of the tooth is made possible, it usually becomes necessary to sacrifice so much tooth structure that the patient is subject to a most excruciatingly painful, and, in many instances, even brutal, ordeal.

Conditions of age, however, may occasion feasible exceptions in single crowns, because of the difficulty, in early life, of perfectly filling the canals, due to the incomplete development and enlarged foramen; and, in old age, to their frequent obliteration as a result of the gradual atrophy of the pulp and the formation of secondary dentine. These latter physiological phenomena only strengthen the argument of the cessation of function of the pulp with complete development of the tooth, and the belief that subsequent disintegration is no more likely to occur after the removal of the pulp than before, providing the canals are properly filled. The difficulty of accomplishing the latter with a reasonable degree of certainty and perfection should be no excuse in view of the modern aseptic means available.

Another exception may sometimes be made where, because of the natural shape of the tooth, or the absence of adjacent or occluding teeth, much grinding will be unnecessary, and the artificial substitute is not carried beneath the gum, both of which greatly diminish the probabilities of irritation.—*Extract from Items.*

A FEW NOTES ON BRIDGE WORK.

BY PERCIVAL T. LEIGH, L.D.S., ENG.

Any idea for quickly repairing a porcelain dummy should be welcome, and therefore I wish to emphasize the well-known advantages of the English tube tooth, and show how I have lately adapted it to bridge work. I feel that its sterling qualities have not received sufficient recognition in this important branch of our work; its great strength, adaptability, natural appearance and translucency, and easiness of repair, make it an ideal tooth for filling the spaces to be bridged. The mounted tooth has only one great rival—the porcelain-faced crown, and for a close bite there is nothing superior to the latter; but with it we have the inevitable dangers of a metal backing.

On more than one occasion I have spent the greater part of a day in repairing one of these porcelain dummies that has left its bridge; but you can see at a glance that if with this method a breakage did occur, one hour divided between the surgery and workroom would see a new tube in situ, fitted and cemented to the old post. You will notice that the superior lingual metal margin is slightly raised and burnished over the tube, thus giving the tube tooth additional support.

With your kind attention I will next show a hollow porcelain-faced dummy that I have used extensively during the last six months in bridge work. The finish is enhanced, there is less danger in shrinking, and from a utilitarian point of view it is just as strong, and will stand the same strain as its brother, the solid dummy. The saving in solder, of course. is very considerable.

The method of making them is briefly as follows: (1) Fit the tooth to the gum; (2) grind the occluding surface flat; (3) strike the cap and fill in with solder; (4) mould the box in Stent, leaving a rim all round for the metal; (5) obtain a cast in moldine; (6) strike the box and solder it.—*Jour. Bri.t Asso.*

ALUMINUM PLATES.

BY JOHN G. HARPER, D.D.S., ST. LOUIS, MO.

Aluminum plates give as good satisfaction as gold plates and are less in weight and expense. I know of plates that have been in use for sixteen years, and the fit and condition of the mouth is fine. Rubber plates affect the roof of the mouth and do not fit well after from five to seven years. In the long run aluminum plates are the cheapest and best that can be used.

The swaging of aluminum is easily done, requiring but one die. The model should be built up slightly with very thin sheet wax to relieve the hard ridge in the roof of the mouth, and trimmed near the posterior portion at the sides to insure close adaption to the soft parts and exclusion of the air, thus giving good adhesion. After swaging, the plate is trimmed so as to allow a good depth to a rim of rubber extending above the edge of the plate. The rim is given a slight incline toward the alveolar ridge, this gives the rubber a firm hold on the plate. The most elevated portion of the plate over the ridge is barbed with a sharp-pointed instrument, making the barbs point in opposite directions. The plate should be tried in the mouth and made to fit properly. The model may be used, or an impression may be taken with the plate in position; this is necessary to build up the rim with wax, to be replaced by rubber above the edge of the metal plate. A roll of wax is now placed on the plate to secure the bite, and the wax is properly shaped to make the desired fullness under the lips and cheek. Proceed now the same as with a rubber plate. It is always better to try the plate in the mouth with the teeth arranged. After finishing the plate wipe exposed metal with caustic soda solution, which gives the aluminum a pleasing white surface.—*Dental Era.*

SEPARATING FLUID FOR PLASTER CASTS.

Various liquids, such as soap-solutions, oils, alcoholic varnishes, etc., are advocated for the separation of plaster casts. If the mould or impression is well saturated with water before pouring the cast, and the latter is given ample time to set well, hot water will usually separate the model very nicely from the impression. Varnishes and oils are objectionable, they fill up the finer lines and consequently the model will not show all the details of the impression. After experimenting for some years past we have found that a weak solution of shellac in water gives excellent results. Shellac possesses the peculiarity to dissolve in water in the presence of borax.

Upon this fact we have constructed the following formula:

Shellac	ʒxij.
Borax	ʒvj.
Water	℥x.

Keep in a warm place, not exceeding 140° F. and shake occasionally until solution is completed, then add:

Sugar	ʒx.
Glycerin	ʒvj. and
Water enough to make	℥xvj.

Shake well until the sugar is dissolved, let stand for a few days and then decant the clear liquid into a wide-mouth bottle. Any water-soluble anlin dye may be added, *e. g.*, nigrosin, to give color to the liquid. Saturate the plaster-impression or cast with water and paint the surface with the fluid. The plaster can now be poured immediately. Contrary to alcoholic solutions of shellac, sandarac, mastic, etc., this solution will not deposit a thick layer of resin upon the surface, which fills up all the finer details of the original impression; it will penetrate into the plaster, leaving a fine gloss upon the surface.—*Dental Era.*

TO REMOVE CONTENTS OF ALVEOLAR ABSCESS.

BY E. L. STEVENS, D.D.S., PARIS, KY.

Many methods have been suggested for the removal of the contents of an alveolar abscess after it has been opened. I make use of the saliva ejector, which is attached to my fountain spittoon. First, take out the mouth-piece and insert three or four inches of glass tubing, then take a second piece of tubing, hold it in the flame of a Bunsen burner, bend to an angle of about twenty degrees and draw it until it breaks, which gives a good tapering point. Cut off small end up to hollow part with a file, as you close the tube when drawing. Now connect this piece of glass tubing with the first one with a piece of rubber tubing about two inches long, which forms a joint that you can work in any direction. Insert point of tube in canal if large enough, or if not, into pulp chamber, and fill around it with wax, making it air-tight. Then turn on water, and if there is any matter in the cavity or canal it will be drawn out. If anything does pass out you can see it through the glass tube. A hollow metal needle would probably answer the purpose as well or better than the glass one.—*Dental Digest.*

WANTED TO KNOW.

BY L. P. HASKELL.

1. Why dentists use the so-called "short bite" teeth? Often in selecting teeth I pick up a handsome face tooth thinking it is just what I want, but upon turning it over I am disgusted to find that it is one of those abominations, the "short bite" tooth. Upon inquiry I am informed that some dentists use very many of them. In all my experience in full dentures I have yet to see the case where such teeth are needed, and on the other hand I find them very objectionable. They are entirely contrary to nature, and also interfere with the tongue by having such a thickening near the ends of the teeth. Will some one explain why they use them?

2. In *plate* teeth, both gum and plain, the pins are nowadays almost always crosswise. On speaking of this at the depots I am informed it is because the dentists demand it. Will some one inform me why? It is very objectionable from the fact that it greatly weakens the teeth. Often a narrow thin tooth is thus made very fragile. Of course if dentists want them they must be furnished, but that those who do not want them should be compelled to use them is wrong, and the makers should be made to see to it that a fair proportion of teeth should have the pins arranged the other way.

3. Why is it that the mass of dentists use, without protest, the bicuspids and molars that are so out of all proportion to the fronts in a majority of sets? Take the teeth of the oldest manufacturers for instance and with nearly 100 molds of upper rubber bicuspids and molars the greater part of the sets are sent out with narrow, thin teeth and with but little

porcelain above the pins, even in long teeth. It would seem with all these years of experience better results could be secured. But so long as dentists use them without protest, the evil will not be remedied. Fortunately there are makes of teeth where this fault is largely remedied.

4. Why is it after all these years of experience, that the dentist fails to find certain shades of natural teeth, especially among the yellows? The fact is they are retrograding. Shades once made are no longer to be found, except in the newer makes of teeth.

5. Why is it in looking over an assortment of bicuspids and molars, in sets, the majority of them are light, often white, while the back teeth should *always* be darker than the fronts?

6. Why cannot sets be made with the cuspids, bicuspids and molars gradually darker than the incisors, like nature?

Will progressive dentists rise up *en masse* and demand a change?—*Review.*

THE USE OF FORMALDEHYDE.

BY DR. J. H. BEEBEE, ROCHESTER, N. Y.

I have used formaldehyde for some time in my practice, employing the following formula: Cocaine, hyd., Thymolin aa grains 15, mix thoroughly and add formaldehyde, drops 10; oxide of zinc, grains 30, and make a paste. As formaldehyde is very volatile, I keep this preparation in a ground-glass covered bottle, oiling the joint. This oil is essential both to exclude air and to keep the paste from cementing the cover to bottle. This preparation will keep about a month before hardening, and it must then be renewed. As it is almost insoluble, I use two bottles, cleaning one with sulphuric acid while the other is employed. I use the paste on cotton as a dressing in the treatment of putrescent canals, also for filling canals. In the latter case I wind silk fiber on a broach, and having dipped it into the paste I carry it to apex of root, continuing the procedure until the canal is filled. This plan has the advantage that in case of subsequent inflammation the strong silk fiber allows the whole filling to be removed. This paste hardens until it becomes about like half-dried putty, and it is non-absorbent. It is well known that formaldehyde hardens tissues without shrinking them, and even if all the pulp should not be removed, there is no need for anxiety. I recently devitalized the pulp in an upper third molar, and having difficulty in getting at the canals, I packed the chamber with this paste. On removing extraneous matter at a subsequent sitting, I found the pulp hardened so that it looked like slivers of red wood.—*Extract Digest.*

TREATMENT OF BLIND ABSCESSES.

BY W. H. WHITE.

The following remarks are made on the treatment of what are known as "blind abscesses," those situated in the apical space, without fistulous opening. When a root canal is opened and there is a free flow of pus through it, followed by blood, the canal may be safely filled permanently so soon as the hemorrhage ceases. The apical space and canal will then be as thoroughly aseptic as if treated for a month. When the canal is small and the discharge is not free, or where there is a latent abscess, more time is required. The first thing to do in such cases is to use a stimulating dressing. This will cause an increased flow of blood to the parts, causing pressure which forces the poisonous gases, together with the drug used, through the canal, and brings an exudation of serum into the apical space. It is not necessary that the pus be forced through, for the giant cells will take care of the pus when the gases which are poisonous to them have been expelled.

The first dressing used in the treatment of such teeth should have the following properties: 1st, stimulating; 2d, penetrating; 3d, non-coagulating, so the canal may remain open for the escape of gases; 4th, liquid, for the same reason; 5th, insoluble in water, so that it will retain its properties; 6th, antiseptic, to keep the apical space from becoming reinfected from the oral fluids. I use oil of cinnamon for this purpose. When the abscess has been sufficiently stimulated a dressing should be used having all the above named properties except the first. Here I use campho-phenique. This on cotton in the root canal will hold its strength for months, and protect the apical space from reinfection even without other fillings.

It is better not to enlarge the canal at first sitting for fear of plugging it with drill cuttings. An open canal is the first essential to success, for with a plugged canal no drug will ever help a "blind abscess" per se.—*Extract Digest.*

FAST AND SLOW SEPARATION: LESIONS INCIDENT THERETO WHEN OVERDONE.

BY J. E. LINE, D.D.S., ROCHESTER, N. Y.

In slow separation we may have irritation, which in itself is of little consequence; inflammation terminating as a rule in resolution or (now rare) in suppuration—an outcome not infrequently seen in times past, but due ever to ignorance, indifference, or sheer neglect on the part of operator, or patient, or both.

In rapid, immediate separation, when overdone, we have a tearing apart, a rupture of the fibers of the membrane, chiefly on the side of the tooth to which the force is applied. If extremely overdone, it may rupture fibres in the deeper parts of the alveolus. Then the vessels come in for their share in the general breakdown, and from them extravasation takes place. Fibers must be pieced out, repaired, healed, reorganizations must be effected in and about the ruptured vessels—all this in the lining of a socket normally filled to the rim. We have extra tissue, tissue over and above the normal requirements of the parts involved—tissue that by a little stretching of the term may be described, particularly in the adult, as "cicatricial" tissue—that lets go on slight provocation and permits or furthers this separation, this shifting of position that is intermittently progressive to a degree that means eventually the loss of the tooth.

And this holds good whether in slow methods that put fibers and other tissue-elements on the stretch with more or less inflammatory action and products, or in fast methods where there is a clean rupture forthwith of the several tissue elements that normally tie together. In either case nature sets about the task of introducing a "dutchman" (or a number of them)—a block of tissue to piece out a bad break or a badly made joint, and nature rarely wholly displaces the dutchman.

Another injury that may attend or follow a too vigorous application of the immediate method is the fracture of the septum at or near the rim of the socket. Notwithstanding the union of the fractured part, the return of the piece of bone to its former place and its unimpaired function as a support is extremely problematical. This condition of things also favors the drift of the moved tooth fractureward.

Still another injury that may follow either slow or fast forcing of the teeth apart when pushed too far is the extra tension placed upon the nerves and vessels entering the apical foramina. This stretching may result, as in the great majority of cases, in merely a temporary disarrangement of the structure of the vascular and nerve supply. In some cases it may be found to mean actual rupture or severance of these contributors to the tooth's well being. That the nerve is affected, stretched, robbed of its transmitting powers, is a matter of daily observation, for a wedged tooth in course of separation or wedge held while under operation, is invariably less sensitive than one that dangles freely in its socket, and this nerve-stretching may and does result (has resulted in more cases than some operators care to remember) in nerve-rupture and disintegration, with which should be included stretching disintegration, rupture of the muscles, and sooner or later death of the pulp.—*Extract Cosmos.*

NEW DRUGS AND THEIR APPLICATION.

In Merck's annual report of new drugs for 1902, and new applications of old remedies, are some of special interest to the dentist:

Acoine C.—This substance is a valuable local anesthetic, and may be conveniently used in the form of a 2 per cent. solution in which is also dissolved 0.8 per cent. salt for producing anesthesia of the gum. This anesthetic may be used when cocaine is contraindicated.

It has also been found useful in periodontitis and treatment of dental fistula.

Calcium Iodate.—A solution of this in water has been found very useful as a mouth wash in cases of fœtid breath.

Gelatine.—This, when mixed with cocaine as an anesthetic, prevents hemorrhage of the gums after extraction.

Glycogenal.—This remedy is said to be a specific for chronic suppuration, such as dental fistula.

℞. Glycogenal, grs. 8.
Glycerine.
Aq. dest., 5 drachms.

This may be used once or twice daily.

A compound of Tannin and basic Oxide of Bismuth. This has been shown to be a valuable antiseptic and gauze has been advantageously employed after excisions of the upper jaw.

Lithium Salolophosphate.—A solution (1:200-500) of this in water is a useful disinfectant as a mouth wash.

Suprarenal Extract has been used successfully as a stypic in dental extractions.

Stypiticine.—This substance has been used with great success by several dental surgeons in the form of gauze or wadding as a hœmostypic after dental extractions.

Tropæ-cocaine Hydrochloride.—The use of this as an anesthetic giving very prompt anesthesia in cases of extractions has been highly recommended by several German dentists.

Pyocyaneus Protein has been employed with very good results in cases of suppurating inflammation of the upper jaw.

Validolium camphoratum.—This consists of a mixture of

10% camphor.
90% validol.

Acts as a local anesthetic and therefore is well suited for the purpose of stopping toothache. A piece of cotton wool moistened with it and placed in the hollow tooth on the affected pulp rapidly causes a cessation of the pain.

Hydrogen Peroxide.—In the form of a 30% solution has been used with complete success as a styptic in hemorrhage due to polyps of gums and pulp extirpation. A piece of surgical sponge is saturated with hydrogen peroxide and inserted in the pulp chamber.

REMOVABLE GUMS ATTACHED TO STATIONARY BRIDGE.

BY J. R. MITCHELL, PERTH, ONT.

Eight years ago the patient, a powerfully built man, came to our office wearing a partial rubber denture, which he was continually breaking. The right superior lateral and left cuspid, being in place, rendered the plate extremely weak. He had lost his left cuspid and also his two right biscupids and first molar. His gums were badly shrunken. He suggested a bridge.

I told him that the great difficulty to overcome was the extreme absorption of his gums, which would have to be replaced in order to preserve the contour of the mouth.

Of course, a bridge with permanent gums readily suggested itself, but the area of soft tissue necessary to permanently cover was an insurmountable objection. Then I endeavored to work out a method of attaching removable gums.

Having got the bridge waxed together and ready for investment, I invest into the wax two small pins of iridio-platinum of sufficient strength and length to hold the gum (there is not much strain on these pins). In inserting them into the wax be sure that the pins are in contract with the backings of the teeth. This being done, you are now ready to solder. Having soldered the bridge, polish it, especially around the area where the gums are to be attached.

Now make two little platinum caps to fit the pins. These being placed in position in the pins the piece is placed in the mouth, and by using soft wax the gum can be built up, to restore the contour. The whole is now removed intact and invested, to be vulcanized as an ordinary plate. Care should be taken when packing the rubber to remove the platinum caps from pins and fill with soft plaster, and replace in position in order to prevent the rubber from getting inside, and thus rendering the removal of the gums difficult or perhaps impossible. When vulcanized, the gum may be taken off and polished.

I do not see any reason why, when necessary, these gums cannot be reproduced in porcelain, and thus render the bridge still more cleanly.—*Dominion.*

TO ADJUST THE PARTS OF A BROKEN VULCANITE DENTURE AND GET A MODEL OF THE SAME.

BY DR. JOSEPH H. NOBLE, PHILADELPHIA.

Pass a cake of modeling composition through the flame of a Bunsen burner until one surface is soft, the other surface remaining rigid. Lay the cake on a flat surface soft side up, and press the occlusal surface of the artificial teeth into it, getting the pieces of the denture in approximately their proper relations. Then, using both hands, correctly adjust the several pieces. They will move readily in the soft composition and will stay where placed. Harden with cold water to prevent the accidental moving of the parts.

Now pour plaster into the lower part of a flask, and, after placing some also on the palatal portion of the denture, place the denture in the flask. When the plaster has hardened remove the modeling composition, remove the pieces of the denture, and proceed as usual.

The cake of modeling composition should not be much larger than the denture, at most not so large as the inside diameter of the flask. In the case of a broken lower it is sometimes advisable to run the cast first, not placing it in the flask until the compound has been removed.

The same compound can of course be re-used. Soften it in hot water and roll to the desired thinness on a piece of glass, with a roller such as is used by the amateur photographer for mounting photographs.

Excellent sheets of modeling compound for base plates may be made in this way.—*Cosmos.*

THE TEAGUE BACKING FOR CROWN AND BRIDGE WORK.

DR. FRED TEAGUE.

These backings for crown and bridge work are hollow boxes with two holes for the reception of the pins on the porcelain facings; they are of various sizes with a flange extending on the four sides which is burnished close to the tooth. They have the form or shape of the lingual surface of the natural tooth. With them bridge work is made comparatively easy.

Some of the advantages of constructing a bridge in this manner are:

1—It is not necessary to put the teeth through the fire, thereby weakening them and possibly changing the shade.

2—It makes the soldering of the bridge simple, there being no teeth to check.

3—The teeth require no tipping with gold, giving them no unsightly appearance, but should the dentist in his judgment think it necessary he can do so just as easily as in the ordinary backing, something impossible with any other detachable tooth.

4—If a tooth breaks off it can be easily replaced without the annoyance of removing the bridge.—*Extract Pacific Dental Gazette.*

SUGGESTIONS

TREATMENT OF TEMPORARY TEETH.—H. S. SUTPHEN.—One of our hardest problems is the care of children's temporary teeth, not only in preserving them as long as possible, but in doing so in such a manner as not to frighten and disturb the child and make him fearful of your operations.

In the filling of these teeth, I have adopted the practice of using red gutta-percha almost entirely, and where there are adjacent approximal cavities in the posterior teeth, to fill the space entirely. In this method the food does not press on the gums between the teeth, and comfort in eating is much promoted. If there should be subsequent death of the pulp, which often occurs owing to the abnormally large pulps in most of the deciduous teeth, and the filling must be removed, it is very easily and almost painlessly done and quick relief afforded. Experience has proved that in a large percentage of cases, the gutta-percha will remain until the time for the shedding of the teeth.—*Extract Items.*

PULP TREATMENT.—V. A. LATHAM.—Speaking of pulp treatment, I have found the stereate of zinc with aristol and oleate of zinc and iodol as excellent agents for pulps which need stimulative treatment, then capping when an effort is being made to save the pulps, as in young teeth.—*Extract Digest.*

IMPRESSIONS OF THE FACE.—Oil the face with white vaseline and put a head-cap on, to prevent the plaster from falling into the hair. Put plaster all across the forehead and sides of the face, to prevent the impression from sagging, and after the plaster has been flowed up to the alæ of the nose, insert a tube so that respiration is not interfered with. The plaster should then be built over the central portion of the face and nose. In using slow-setting plaster use wet towels to keep the face cool. Remove the plaster cast down, pulling off toward the center of the nose. Varnish the impression with sandarac, then use soap as a separating medium.—*Western Dental Journal.*

To Define Cavity of Decay.—F. W. Low.—Place rubber dam on the tooth and apply full strength formaldehyde solution to the carious region; it will clearly define the extent of the softened tooth structure.—*Cosmos.*

Heating Gutta-Percha Impairs It.—Dr. Beal.—The only thing I have to say is that I find the heating of the gutta-percha interferes with its durability. If you will heat your instrument and press it in, it will last longer. Heating the gutta-percha spoils it. Heat your instrument and save the gutta-percha.—*Items.*

To Make Retaining Point in Back of Inlay.—Mr. C. Rippon showed an ingenious method of making a retaining point in the back of an inlay so as to obviate cutting grooves for retention. The method was to make a small hole in the back of the inlay before baking and filling it with investing silex. After the inlay was baked the silex was removed from the hole, which acted as a retaining point when cementing in. —*Record.*

Crown or Filling?—B. S. Hert.—In the case of badly decayed molars our decision should be influenced somewhat by whether or not there are any teeth to occlude, and if not, we should fill instead of crown. In cases of loose roots crowning should be postponed as long as possible, although some teeth of this character which I have crowned have been quite satisfactory, a few of them even improving. When senile decay is reached, and no fillings stop its ravages, we are justified in putting on crowns even when considerable of the natural tooth structure remains. We should always ignore the financial element in determining the question under discussion, and the wishes or advice of the patient should have very little weight. Our rule should be to fill as long as possible and crown only as a last resort.—*Dental Digest.*

To Arrest Hemorrhage.—I. M. Fry.—I recently extracted some teeth for a patient, and several hours afterwards was called in the night to do something to stop the bleeding. It seemed that the patient had always had trouble of this kind after extraction of teeth, etc. I took an impression of the mouth in modeling compound, and when cold trimmed it to make an appliance that could be worn in the mouth, notching it to receive a small strong bandage to be tied over the head. I then made a thin batter of plaster, adding a pinch of salt, and filled the appliance, putting it at once into the mouth and pressing it firmly to place. I held it there until the plaster was set, and without removing it the bandage was put in place and tied firmly. The socket had previously been packed with cotton saturated with fluid extract of ergot. This had been sufficient to stop the bleeding for the same patient on two former occasions of similar character. Immediate relief was given in this instance.—*Digest.*

A Soluble Matrix.—W. W. Belcher.—I have been using for the past year or more a new matrix of my own devising. It has a limited application, but fills a place impossible with any other. In the use of the removable band matrix, it has always been my fear that while in a plastic condition the filling might become disturbed at the cervical margin; and it occurred to me that a matrix that could be quickly applied and the necessity of its removal obviated would prove most desirable. This matrix is of thin gelatine which can be procured in sheet form, or better still, as the ordinary 1 drachm veterinary capsule. Gelatine is eminently soluble. On the application of moisture it can be shaped to any form. It possesses in a large degree several of the essentials of a matrix; ease of manipulation, non-irritability or injury to the tissues, and properly shaped, will not obscure the cavity. Taking a sheet of gelatine or a veterinary capsule it is held in the hand for a few moments to impart warmth and then shaped for the case in hand. The matrix is placed in position, the tooth filled, with no further attention to the matrix, as the saliva will in a short time remove all traces of it, with no risk of disturbance of the filling.

Five years ago I rarely used matrices, but each day I find a new application for them, an increased satisfaction in my work; best of all a feeling of having rendered superior service and collected a fee in accordance therewith.—*Extract Off. and Lab.*

ANESTHESIA WITH NITROUS OXIDE AND ETHER IN PATIENTS ABOVE MIDDLE AGE.—Greater allowance of oxygen should always be made for patients above middle age, for, although it may be found that their nervous and mental activity often seems to make them somewhat resistant to the effect of the anesthetic, they should not be heavily dosed with nitrous oxide, nor rendered at all cyanotic. The general circulation is at this time of life far less fitted to stand any asphyxial strain without the possibility of damage to the vessels or secondary cardiac depression.—*Journal of British Dental Association.*

STICKING STOPPERS.—To prevent the annoyance of sticking stoppers in varnish bottles, coat them with glycerine or vaseline.

STERILIZATION OF SMALL INSTRUMENTS.—R. C. YOUNG.—For the sterilization of small instruments, such as probes, broaches, syringe needles, etc., a quick and efficient method is to boil them in a test tube containing a bicorbonate solution. The hypodermic syringe, when not in use, should be filled with an antiseptic solution, and never used for any other than a submucous or subcutaneous injection. The needle should be kept in alcohol, or, better still, a five per cent. solution of lysol. The most delicate instrument can be kept in this for an indefinite time without injury. If one has a gold or iridio-platinum needle, it can be sterilized in a flame. If one does not think the mouth-mirror needs sterilizing, just let him rub off glass and handle with a moist cloth, and he will be convinced. Of course the mirror cannot be boiled; it must be kept in a glass of some antiseptic solution.—*Cosmos.*

INEXPENSIVE BUT EFFECTIVE STERILIZER.—R. C. YOUNG.—Now for the instruments—forceps, excavators, burs, knives, clamps, etc. A sterilizer can be made for a couple of dollars which will do just as efficient work as one that costs ten. Any tinner can manufacture one: A tin pan 6x12 inches, 4 in. deep, with a cover to fit close, a piece of perforated tin, with a handle on each end, which will fit nicely inside like a second bottom. Upon this the articles to be sterilized are to be placed; a solution of ordinary cooking soda, sodium bicarbonate, about two-thirds fills the pan, and it is placed over a Bunsen burner, or a coal-oil lamp used for the vulcanizer, to boil five or ten minutes; lift the false bottom out, and the heat of the instruments will dry them off in a few moments. The soda in the water prevents rusting; of course wooden-handled instruments cannot be boiled.

Before placing burs in the sterilizer, brush them off with a wet tooth-brush, or a brush of similar shape.—*Cosmos.*

VULCANIZATION OF LARGE PROSTHETIC PIECES.—DR. CLAUDE MARTIN vulcanizes large prosthetic pieces at a temperature of 311 deg. F. for two hours, and never has to record cases of porosity.—*Australian Journal.*

TRIMMING OF LOWER PLATES.—J. E. LINE.—I have had trouble with lower dentures, much of it due to the over-extension of the plate. Many years ago a dentist who always made gold plates told him that the best rule is to cut away all of the plate you dare to, and then to cut away just a little more. The plate does not require the extension to hold it in place, and on the other hand it furnishes a lever, so to speak, by which the plate will be lifted by the movements of the mouth from the place where it should remain.—*Cosmos.*

SHAPING THE IMPRESSION.—DR. BACHMAN says that if the tongue be thrust out while the plaster is still soft, and the mouth twisted in every direction, the impression will be so shaped that the plate will only cover so much as is absolutely necessary and there will be nothing to cut away.—*Cosmos.*

Taking Impressions to Avoid Shrinkage.—Dr. Faxon.—There is a question whether a misfitting plate is not due many times to the shrinkage of the plaster in taking the impression wholly of plaster, which leaves an uneven thickness of the plaster and therefore an uneven shrinkage, and in filling the impression the same trouble would occur. For the last few years it has been my method to form a tray of modeling compound and then run in a thin layer of plaster. In that process the plaster gives a very thin layer in which there would be absolutely no shrinkage. In filling that impression I add about one-fourth marble dust to the plaster, which I believe will bring the shrinkage to the minimum.—*Cosmos.*

Glass for Bracket and Cabinet.—J. H. More.—For years I have had my bracket covered, and where convenient, the drawers of my cabinet lined with glass instead of felt. This makes conditions more aseptic.—*Cosmos.*

Care in Use of Broaches.—R. C. Young.—In treating a tooth which has two or more roots, never use the same broach in different roots without cleansing it, for it may be that all the roots are not septic—abscesses are often confined to one root—and if the instrument be used in first one and then the other it is more than possible to carry infection into the other roots. Of course we would not allow the saliva under any circumstances to enter the cavity.—*Cosmos.*

To Prevent Soreness of Gum from the Application of Clamps to Teeth.—The soreness which follows the application of an ill-fitting clamp can be prevented in a great majority of cases by brushing the gum around the neck of the tooth with tincture of calendula. This preparation has the valuable property of preventing soreness and suppuration and of inducing the rapid development of healthy granulations.—*Cosmos.*

Guaiacol in the Extraction of Teeth.—B. Marichal.—Since the anesthetic properties of guaiacol became known, the idea was conceived of using this agent in dental surgery, and Dr. Marichal has obtained very satisfactory results with the use of the formula suggested by Dr. André, which is as follows:

℞—Guaiacol, chemically pure, 1 gram;
Olive oil sterilized and neutralized, q. s. to make 10 c.c. M.
Sig.—For hypodermic injection, each cubic centimeter containing 10 centigrams of guaiacol.

In one hundred extractions, Dr. André observed that the effect of guaiacol is at least equal to that of cocaine, and that in certain cases in which the cocaine does not produce the desired effect, as in periostitis, perialveolar abscess, and radicular cysts, guaiacol produces perfect analgesia—*analgesia,* as sensibility to touch is preserved, the sense of pain being the only sensation destroyed. This agent, then, is not a true anesthetic, but an analgesic.

Guaiacol has also produced favorable results in the treatment of pulpitis, the pain having subsided through the application of the drug in the carious cavity, without the necessity of opening the pulp chamber. The hypodermic injections of guaiacol are made in the same way as those of cocaine; the quantity injected is generally a cubic centimeter, and from three to five minutes should elapse between the injection and the extraction. Dr. Marichal recommends the use of this agent and asks his colleagues to test its efficiency. It being entirely non-toxic, and not caustic, its use as an agent for the painless extraction of teeth should become very general.—*Cosmos.*

TO REMOVE OXIDE FROM GERMAN SILVER—V. E. BARNES.—For cleaning oxide from German silver regulating appliances, commercial hydrochloric acid, full strength, and cold, will act immediately. Neutralize acid with solution of sodium bicarbonate.

HOW TO PREVENT PLASTER ADHERING TO RUBBER PLATES—H. E. BRUBAKER.—To prevent plaster sticking to rubber plate, rub the model well with borated talcum powder. Your plate will be finished beautifully.

Bleaching Pink Rubber.—I have found that the quickest way to bleach pink rubber is to focus upon it the rays of the magnifying glass, taking care not to burn it, as this method gives you a beautifully bleached pink in about five minutes.—*L. Arndt, Digest.*

Tips in Prosthetic Work.—

Don't use English teeth in porcelain work.

To make platinum solder, take twenty-five parts of platinum to seventy-five parts of pure gold.

Be sure to shellac surfaces of facing before investing to flow platinum solder on the pins.—*Clippings.*

New Temporary Stopping.—Dr. Barrellier advocates the use of cotton impregnated with a paste made of oxide of zinc by hydrogen dioxide as a temporary dressing. Such stoppings were found in good condition after one week in mouths unhygienically kept.—*Register.*

Drying Pulp Cavities—W. H. Weaver.—To dry the dental tubuli after injecting a preparation or solution and removing the pulp at once, use a 50 per cent. solution of alcohol, increasing strength 10 per cent. every time and drying, until absolute alcohol is used the last time. It leaves vacant every space. It is immediately dried, so far as can be made so by the use of any preparation. We all know that alcohol is the great absorbent of moisture.—*Dental World.*

Arsenical Poisoning Cured by Orthoform—A. D. Kyner.—I had a case of acute arsenical poisoning with the conditions present so familiar to all. With a spoon excavator I removed the blackened gum tissue, syringed the parts with a warm antiseptic solution, soaked the gums and surrounding tissues with dialyzed iron, and applied a twenty-five per cent. unguent orthoform. The pain in this case was the severest that I ever saw, and I must admit being astonished when the patient returned on the following day and reported that the pain had ceased and had not returned. Relief came within twenty minutes.—*Items of Interest.*

Die and Counter-Die of Melotte's Metal.—Dr. A. H. Davis, in the Atlanta *Dental Journal,* recommends painting the surface of the die with a thin coat of whiting and water to prevent adhesion. It is then dried with a blast from the blow-pipe. The counter-die may be poured reasonably hot. The parts separate readily.

[If No. 4 tinfoil be pasted over the die and pressed closely in contact with a soft piece of rubber and then dried, the die and counterdie will separate readily. If another coat of the paste be put over the tin next to the counterdie, the tin will not adhere to the counterdie. If this be not done the composition of the metal will be gradually changed by the addition of the tin.

The paste used is ordinary paste sold at stationery stores. —McClain.]—*International.*

Treatment of Diseased Bone—G. W. Cook.—For diseased bone conditions I use equal parts of carbolic acid and sulphuric acid, which is a bland preparation. It is not so irritant as is the sulphuric acid alone. It is more antiseptic, and has more affinity for the micro-organisms involved in the disease than has any other agent we can use outside of chinosol.—*Review.*

Where Cocaine is Serviceable—J. G. Reid.—The one place where cocaine is a most serviceable agent is in the removal of portions of necrosed bone from a small cavity where I want to pack the tissues for a few days. I find that the application of cocaine for a few moments enables me to introduce the packing with much more success and comfort to my patient. I also use cocaine before introducing arsenic to the pulp. I do that in almost every case. I invariably have my rubber dam in position, and am not flooding the mouth with any uncertain percentage of cocaine. I find that I have less trouble with the after-results of arsenic by such a procedure. —*Extract Review.*

Where Cocaine is Most Dangerous—E. R. Carpenter.—From all I have found written on the subject of its toxic effect, I gather that the most dangerous use of cocaine is to inject it into deep-seated cavities, such as the bladder, sinuses or abscesses.—*Extract Review.*

How to Use Cocaine for Gums and Pericementum—E. R. Carpenter.—I pack powdered crystals of cocaine under the free margin of the gum against the pericementum at points where both jaws of the clamp grasp the root, and in a minute to a minute and a half I can press the gum away from the margin of the cavity, and force the clamp to place with but little or almost no pain to the patient. In this procedure I will add that the rubber dam is applied first, and the hole of the rubber dam encircling the tooth to be thus anesthetised is drawn to one side by the forefinger, enlarging it just enough to expose the edge of the gum, when cocaine can be readily packed between the gum and pericementum without the danger of getting it into the mouth and having the saliva carry it to the tongue and throat. Should the cavity be so far beneath the gum as to preclude the possibility of forcing the gum out of the way, I unhesitatingly clamp well on to the gum itself, and dissect away the exposed flap with a sharp spoon excavator, dipping same into a 95 per cent. solution of carbolic acid before using. The acid sears over the edge of wound, thus inhibiting the action of micro-organisms upon the freshly cut surfaces after the clamp has been removed.—*Extract Review.*

Use of the Ferrule in Crowning—H. C. Register.—I do not hesitate to say that there are as many, if not more, roots destroying by crowning than are saved by it, because of the production of irritation, which induces gingivitis leading to pericementitis and the other ills that follow irritation. The ferrule should be used with extreme care. I very rarely, except in exceptional cases, let it run up above the gum at all. I prefer a plate of gold or platinum well fitted to the face of the root. Through this is passed the post of a Logan crown, which has its labial edge nicely adapted to the labial part of the plate, while the lingual edge of the porcelain is well ground away, leaving a space between the crown and the plate. After being satisfied that everything is as correct as one can make it, simply catch it on the inside or outside with a quantity of phosphate of zinc. I use petroid for this. If using a gold plate, fill in the space with low-fusing porcelain body; bake it in the furnace, and it comes out a perfectly solid tooth with a little gold or platina termination, and the adaptation is exact. A plain plate tooth may be used if preferred. When in position on the root you have not got the ring or ferrule under the gum to act as an irritant. The festoon of the gingiva will become normal. The chief use of the ferrule is to prevent the root from splitting.—*Extract International.*

PULP ANESTHESIA THROUGH THE PERIDENTAL MEMBRANE—E. C. CARPENTER.—I am convinced after six years of close observation in daily practice that in thus cocainizing the peridental membrane the effect of the anesthesia is, to a considerable degree, carried to the pulp of the tooth. Since I have taken special precaution to anesthetize the peridental membrane, I observe that in fully nine-tenths of such cavities I can excavate with much less pain than ever before, and in many cases without pain at all. Thus you have the results of my clinical experience.—*Extract Review.*

TREATMENT OF ABSCESSED DECIDUOUS TEETH—C. N. JOHNSON has advocated the following: Cleanse canals as thoroughly as possible. Fill pulp-chambers with cotton saturated with oil of cloves, and by means of unvulcanized rubber exert pressure on cotton until oil of cloves is forced through sinus. Then flood cavity with solution gutta-percha in eucalyptus and force temporary stopping into each canal until the eucalyptus appears at fistulous opening. Will rarely give any further trouble.

OBITUARY

DR. J. A. WHITE.

Dr. Justus A. White, of Saginaw, was drowned during the regatta of the Little Traverse Bay Yacht Club. The boat capsized with four passengers. Three were rescued. Dr. White was 39 years of age, and was a graduate of the Chicago College of Dental Surgery, in 1889. He came to Saginaw 15 years ago, and had built up an extensive business in dentistry. He was a single man, and a member of the Ten Eyck Club. He was a member of Saginaw Lodge, No. 77, F. & A. M.; of Saginaw Valley Chapter, R. A. M., and St. Bernard Commandery, No. 16, K. T.

At a meeting of the dentists of Saginaw Valley, held at Dr. R. P. Alden's office, August 15, at 8 p. m., the following resolutions were unanimously adopted:

WHEREAS, in the death of our friend and practitioner, Dr. J. A. White, the dentists of Saginaw Valley have sustained the loss of a beloved member, who by his dignity and councils added much to the profit and interest of the dental profession, and who did all in his power to promote the welfare and high professional character of this community; and

WHEREAS, we each feel the loss of a true friend, whose kindly smiles and deep experience did much to cheer and encourage; and

WHEREAS, we believe that the welfare of humanity through his professional attainments was ever his aim and ideal, and his every act was never to bring discredit upon the profession; therefore be it

Resolved, that we pay such tribute to his memory as possible; that we extend our sympathy to the relatives and friends, who also have suffered loss; and further be it

Resolved, that a copy of these resolutions be sent to his relatives, and that they be given to the local papers and professional journals for publication.

Egbert T. Loeffler,
R. P. Alden,
Edward D. Slawson,
Committee.

SOCIETY

MINNESOTA DENTAL SOCIETY.

The officers elected for the ensuing years are as follows: President, Dr. F. R. Holden, Duluth; vice-president, Dr. A. M. Davis; secretary, Dr. George F. Todd; treasurer, Dr. H. M. Reid, Minneapolis; chairman executive committee, Dr. J. M. Wall, St. Paul; master of clinics, Dr. J. O. Wells.

The next meeting will be held in Minneapolis.

NORTHERN ILLINOIS DENTAL SOCIETY.

The fifteenth annual meeting of the Northern Illinois Dental Society will be held at Rockford, October 15th and 16th. Members of the profession are cordially invited.

J. J. Reed, *Secretary.*

NORTHERN IOWA DENTAL SOCIETY.

Officers elected for ensuing year: President, William Finn, Cedar Rapids; vice-president, A. W. Beach, Sheldon; secretary, C. L. Topliff, Decorah; treasurer, D. H. Riser, Decorah.

SOUTHWEST VIRGINIA DENTAL SOCIETY.

Officers elected are: President, Dr. C. H. Carson, Roanoke; vice-president, Dr. J. H. Hartman, Lexington; secretary and treasurer, Dr. R. L. Simpson, Fincastle.

INTERNATIONAL DENTAL CONGRESS.

The National Dental Association at Niagara Falls by resolution invited the committee (charged with promoting the Fourth International Dental Congress) of the Federation Dentaire Internationale to hold the fourth congress in St. Louis during the Louisiana Purchase Exposition, 1904, and elected Dr. Eugene H. Smith, Boston, Truman W. Brophy, Chicago, and Wm. C. Barrett, Buffalo, as commissioners to present the invitation to the Federation August 15th at Stockholm, Sweden.

The President, Dr. J. A. Libbey, appointed an Executive Committee of Fifteen to organize and conduct this congress in case of the Federation's acceptance.

The Committee is composed of Drs. Edw. C. Kirk, Philadelphia; R. H. Hofheinz, Rochester, N. Y.; H. J. Burkhart, Batavia, N. Y.; Wm. Carr, New York City; Waldo E. Boardman, Boston; V. E. Turner, Raleigh, N. C.; J. Y. Crawford, Nashville, Tenn.; M. F. Finley, Washington, D. C.; J. W. David, Corsicana, Texas; Wm. Crenshaw, Atlanta, Ga.; Don M. Gallie, Chicago; Geo. V. I. Brown, Milwaukee; A. H. Peck, Chicago; J. D. Patterson, Kansas City, Burton Lee Thorpe, St. Louis.

On August 18th the Committee received a cablegram, stating the Federation had accepted the invitation and the Fourth International Dental Congress will be held in St. Louis, August, 1904, during the Louisiana Purchase Exposition.

SECOND ANNUAL MEETING OF THE AMERICAN SOCIETY OF ORTHODONTISTS, PHILADELPHIA, OCTOBER 8, 9, 10.

Headquarters, Continental Hotel.

Papers—The President's Address; "Normal and Pathological Anatomy of the Alveolar Process and Adjacent Tissue," M. H. Cryer; subject to be announced, Edward C. Kirk; "Art in Relation to Orthodontia," Edward H. Angle; "The Deformities of the Superior Maxilla from the Standpoint of the Rhinologist," C. H. Kohler; "The Causes of Malocclusion," Wm. J .Brady; "Retrusion of Both Jaws with a Single Appliance," R. Ottolengui; "Nasal Occlusion and Septal Deviation in their Relation to Antrul Development and Facial Expression," Royal S. Copeland; "Orthodontia from the Standpoint of a Student," Anna Hopkins; "Distal Movement of Molars and Bicuspids Limiting Extraction," Lloyd S. Lourie; "Stationary and Removable Appliances, Alone and in Combination," H. A. Pullen; subjects to be announced, W. Booth Pearsall, J. Humphries, J. E. Grevers.

Time will be reserved for the consideration of specimens pertaining to orthodontia which any one may care to present. A cordial invitation is extended to the profession. Headquarters, Continental Hotel.

MILTON T. WATSON, *Secretary.*

270 Woodward Avenue, Detroit.

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. W. W. Loring, of Indianola, Ia., died Sept. 1st.

Dr. Mullins, Lee, Mass., lost $1,000 by fire, Aug. 14th.

Dr. A. O. Hunt, Chicago has moved to Omaha, Neb.

Dr. E. C. Crawford, Chicago, Ill., loss $200 Aug. 29th.

Dr. W. S. Stalker, Caldwell, Idaho, loss $400, Sept. 3d.

Dr. E. J. Etheridge, Leesville, S. C., lost $150. Aug. 27th.

Dr. C. B. Campbell, Chicago, died from consumption, Aug. 25th.

Dr. L. A. Barber, of Buffalo, is now located at East Aurora, N. Y.

Dr. E. J. Allen, Dayton, O., had $15 worth of gold stolen Sept. 3d.

Dr. A. Ames, in practice at Kankakee, Ill., since 1855, died Aug. 8th.

Dr. J. E. Gilbert, of Bay City, Mich., has gone to Port Arthur, Texas.

Dr. Frank L. Booth, of Victor, N. Y., died from consumption, Aug. 8th.

Dr. J. G. Probst, Hartford. Wis., married Miss Elsie M. Kern, Aug. 15th.

Dr. Lorenzo Bush, pioneer dentist of Lagrange, Ill., died Sept. 11th, aged 83.

Died.—Dr. Oliver Johnson, Lincoln, Neb., died from typhoid fever, Aug. 20th.

Dr. J. H. Williams, of Chattanooga, Tenn., died from heart failure, Aug. 11th.

A Dentist Wanted in Haskinson, N. D., Tekonsha, Mich.. and Edmore, N. D.

Dr. J. J. Reed, who has practiced years at Rockford, Ill., has moved to Beloit, Wis.

Dr. E. H. Moss and Mrs. Mattie J. Richardson, Chillicothe, Mo., married Sept. 4th.

Dr. W. T. Withroft, formerly located at Richwood, O., is now established at Marion.

Dr. S. J. Hopkins, of Port Colborne, Can., dropped dead from heart disease, Aug. 11th.

Dr. E. Q. Green, Pemberville, O., married to Miss Agnes Tress, at Columbus, Sept. 9th.

"A thing is not cruel because it hurts you," says Dr. Andrews. Just what our dentist says.

Dr. Waack, Chicago, identified body of William Bartholin by his teeth and dental work done.

Dr. A. D. Crane, Newark, N. J., was thrown from a trolley car Sept. 3d, and fatally injured.

Dr. C. S. Searles, Dubuque, Ia., has been appointed member of the State Examining Board.

Dr. North, of Indiana, has become violently insane. Drugs are supposed to have caused it.

Loss by Fire.—Dr. Estelle Snyder and Dr. F. M. Barden, Hamilton, O., burned out Aug. 15th.

Dr. L. S. Wilson, of Burlington, Iowa, has moved to Elmhurst, N. Y., to practice dentistry there.

Dr. C. O. Hood, of Beverly, Mass., is said to have been appointed dentist of the German Emperor.

Another Dental College.—The Memphis Dental College, Memphis, Tenn., was incorporated Aug. 5th.

Dr. Stone, St. Paul, took corrosive sublimate tablets by mistake for lithia tablets and came near dying.

Burglaries.—Thieves stole $60 worth of gold from the office of Dr. Harris, Fergus Falls, Minn., Aug. 25th.

Married.—Dr. Charles Sounders, of Denton, Tex., married to Miss Frances Hanson, Warren, O., Aug. 14th.

W. A. Dickson, dental student, was arrested ot Indianapolis for practicing without a license from the State Board.

Three of a Kind.—The Bronson family of Charles City, Ia., have three members engaged in the practice of dentistry.

Dr. E. N. Clark, aged 85, of Beloit, Wis., died Sept. 8th; was a charter member of Wisconsin State Dental Society.

Dr. J. B. Beers, said to have been the first dentist to practice in San Francisco, Cal., and continuously since 1852, died Aug. 14th.

Dr. J. G. McCartney, of Mitchell, S. D., has been appointed a member of the State Board of Dental Examiners by Governor Herreid.

Miss Susan Dorrance, daughter of Dr. W. H. Dorrance, Ann Arbor, Mich., was married Aug. 28th, to Robert Fox, of Detroit, Mich.

Short-weight Scales.—A man has been doing the dentists of Washington, D. C., buying their gold scraps, using short-weight scales.

Dr. H. J. Bucher, Milwaukee, Wis., found dead with empty carbolic acid bottle in his hand. No cause can be assigned for the suicide.

Dr. M. A Manks, Rockford, Ill, loss $50, Sept. 10th. Fire caused by imperfectly insulated wires from a rheostat touching window frame.

Dr. W. W. Wood, young dentist of Richmond, Va., disappeared Aug. 7th and no trace has since been found of him. Supposed to have been murdered.

Thieves entered the offices of Drs. Larkin, Erbe, Abbott and Maloney, at Waterbury, Mass., night of Aug. 18th and got away with $400 of gold, instruments and other materials.

Dental Hygiene in the Schools.—It is said that a dental primer will be recommended to the Mississippi legislature at its next session for adoption for use in the public schools of that state.

Popular Dental Education in Sweden.—Swedish dentists have subscribed for the gratuitous distribution in their country of a periodical which is to inculcate better ideas regarding the care of the teeth.

Dr. A. R. Dray, chief of clinics, Medico-Chirurgical College, Philadelphia, by a misstep while walking across a trestle, fell twenty feet to the ground and sustained two broken wrists and a severely strained back.

Suicided on Wedding Day.—Dr. Otto Holt, Tower Hill, Ill., aged 23, suicided with carbolic acid at a hotel in Pana, Ill., Sept. 10th, while his intended bride and guests were waiting for him. Financial difficulties said to be the cause.

Dental Society for Mutual Protection.—The dentists of Jacksonville, Fla., have organized a dental society with Dr. C. R. Mitchell, president, and Dr. H. H. Boulter, secretary. One of the objects of the organization is mutual protection against "dead beats."

An Instructive Catalogue.—The S. S. White Company has just issued a catalogue which, aside from its usefulness as a catalogue, contains much information regarding practical manipulation not found in text-books. It is a valuable book for every prosthetic dentist.

A Dental Proposition.—It is not difficult to guess where the small boy in the following story, which is told by a Salisbury paper, gets his breeches: A Salisbury man bought a new set of false teeth. "Papa," asked his young hopeful, "what are you goin' to do with the old uns?" "Throw them away, son." "I'll bet," answered the youngster, after a brief period of meditation, "that you have 'em cut down for me."

Medical Book News.—This is a new bi-monthly publication devoted to the literature of medicine and the allied sciences, containing lists of new books, reviews taken from prominent periodicals, news items and advertisements. It is published by the well-known firm of P. Blakiston's Son & Co. of Philadelphia. The first number is just out, and it is in every way up to the high standard of the publishers.

ALLOWANCE FOR DENTAL LEGISLATION IN NEW YORK STATE.—According to the appropriation bill passed last April the following allowances are made: For the salaries of examiners, $900; of one clerk, $600. For expenses of the state dental examiners and the payment of the surplus to the state dental society, $3,500, or so much thereof as shall be available therefor after deducting necessary expenses and the salaries above specified.

A WARNING.—We are informed by one of our representatives that a person calling himself Dr. L. W. Comstock, of Columbus, Indiana, is going around to dentists and offering to sell them a formula consisting of Cocaine and Ether. The price asked is $25 and our representative's informant purchased the formula for $17.50. It might be of advantage to readers of your journal were you to inform them of this imposition.—*McKesson & Robbins.*

NEW DENTAL COLLEGE.—The San Francisco Dental College has been incorporated by D. Maclean, A. E. Sykes, H. W. Hunsaker, H. M. Owens and Alfred E. Blake. The object of the incorporation, it is said, is to conduct an opposition dental college to those already in existence. The graduates of the college were denied diplomas by the State Board of Examiners last year, and a suit to compel the issuance of certificates is still pending.

EFFECTS OF IMAGINATION.—An x-ray examination at a Chicago laboratory has disclosed the fact that J. G. Robertson of Cooksville, Wis., did not swallow his false teeth, as he had supposed. This discovery has greatly relieved Mr. Robertson's mind, and, incidentally, an acute stomach trouble from which he had suffered since the disappearance of the teeth. Robertson lost his teeth while asleep, and the belief that he had swallowed them so preyed upon him that he made the trip to Chicago to have them removed if they proved to be in his stomach.

A GOOD MOTTO.—Dr. F. O. Hetrick says: "In using any form of gold, if we take for our motto that good enough never will do, but that each succeeding step in building up the character of our professional attainments must be a step in advance, more perfect adaptation, a better conservation of the energy of both patient and dentist, a more thorough understanding of the materials that we use and of the functions they are to perform in the economy of the mouth and a determination to employ thoroughness in every operation, we will from day to day take a step higher in the attainment of a more perfect professionalism."

SUED FOR $2,000.—Emmett Forbush has begun suit in the circuit court against two dentists of Grand Rapids, Mich., Drs. M. H. Lamoree and J. H. Beard, in the sum of $2,000 for an alleged broken jaw. He claims that he went to their office last February to have a decayed tooth treated. They extracted it for him and a few days later his jaw was very painful. A physician was visited, who told him his jaw was fractured. The dentists say the case on the start was one to be treated by a doctor of medicine rather than a dentist, but the first thing to do was to remove the tooth, which was done, and if Forbush had then taken their advice and gone at once to a physician for treatment, he would have been all right.

Dental Thief Arrested.—F. L. Weleh, 19 years of age, was arrested in Jersey City, Aug. 7th, for robbing dentists. The man's method of working, the police say, was to go to the office of a dentist and say he desired to have a tooth treated. He was usually able to get away with considerable gold by distracting the dentist's attention and filching some of the metal used for filling. He is charged with thus robbing fifteen dentists in Manhattan, four in Brooklyn, five in Paterson and two in Jersey City. When arrested he admitted his identity and thefts. In Jersey City the man stole $60 worth of gold from Dr. Barlow and $30 worth from Dr. Horning.

Death from Chloroform.—Mrs. Anna Orn, Chicago, Ill., died Sept. 2d from the effects of chloroform administered for the extraction of teeth in the dental office of Dr. S. J. Davis. The dentist wanted to use nitrous oxid gas but patient insisted on chloroform administered by a physician.

No arrests were made in the case, as Dr. Springer of the coroner's office held a post mortem examination and found the woman had been suffering with several ailments, among them being fatty degeneration of the heart and stomach troubles. The physician stated these diseases had caused death, but it was superinduced by the chloroform. As far as can be learned there was only a small quantity of the drug administered by the physician.

Difficult Dentistry.—The nawab of Rampur, whose domain is about 600 miles to the northwest of Caleutta, came down from his home to call on Dr. Smith, says a London paper, and brought 150 people with him to see about his mother's teeth.

She wanted a set of false teeth, and because Englishwomen had two sets the maharima must have two sets also. The nawab of Rampur is a Mohammedan; so of course the mother could not show her face.

Likewise on that account Dr. Smith had to go to Rampur to do the work. Two thousand miles to make two sets of false teeth! It cost the nawab 4,000 rupees.

The old woman lay back with her face covered, and the dentist worked at her mouth through a hole in a sheet.

THE DENTAL SUMMARY

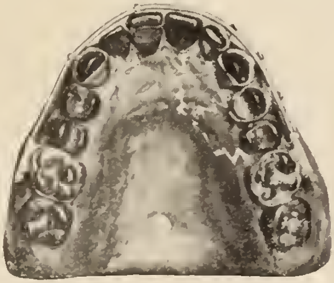
VOL. XXII NOVEMBER, 1902 NO. 11

CONTRIBUTIONS.

ALVEOLAR FRACTURE OF THE SUPERIOR MAXILLA AND TREATMENT.

BY VARNEY E. BARNES, D.D.S., CLEVELAND, OHIO.

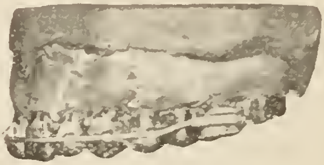
Our authorities, writing on the subject of "Fractures of the Maxillæ," without exception, pass over alveolar fracture as not serious and treat the case by bandaging or wiring the jaws together. Of course such fractures are not serious as regards the life of the patient, but the possible loss of good sound teeth is indeed serious and merits our best consideration.



Treatment of these cases by fastening the jaws together is certainly very simple and efficient, but it has many drawbacks. Food has to be administered in liquid form, speech is difficult, and if a bandage is used, its appearance is unsightly, and the business and comfort of the patient are interfered with to no little extent.

Except in cases of great laceration of the soft tissue, the writer believes these objections can be entirely overcome by means of apparatus easily prepared by any dentist. Before describing this method of treatment, let us first consider what the ideal treatment should be.

The patient should be comfortable, able to eat ordinary food, able to talk distinctly, able to go about his daily business without attracting attention. His teeth should be: replaced in proper occlusion and held immovable until nature has been given opportunity to do her work of restoration, and the fracture must be reduced and retained in position.



All the above ideal requirements are believed to be fulfilled in the following method of treatment:

Most cases of alveolar fracture occur anterior to the first molars, so that we may use the molars as anchorage, and in addition to them, other teeth not loosened by the accident. A case involving the incisors, such as might be produced in a fall against a curb stone, or by a kick, will permit the use of the cuspids or first bicuspids as an addition to the molars. A unilateral fracture will leave sound teeth on the other side of the arch. Thus, we may always be sure of at least four teeth, in a normal mouth, to anchor to.

When these cases present to us we will find the following conditions:

The teeth inclined lingually, labially or buccally, or they are forced into their sockets, or out of them, by the inflammation produced.

To illustrate more clearly the plan of treatment we will use a typical case, but the idea is to be kept in mind that all cases should receive similar treatment. The patient had fallen from a lumber pile in such a manner as to fracture the alveolus in the region of the left superior lateral, cuspid and bicuspids. A careful examination of the teeth proved that none of them were fractured and that none but the teeth mentioned were even lossened by the fall. There was only slight laceration of the soft tissue, but the teeth themselves were forced lingually and extruded to quite an extent from their sockets, preventing occlusion. The first molars and the right central and cuspid were selected for anchorage and banded; clamp bands with buccal tubes on the molars and plain bands with tube hooks on the central and cuspid. Separation for the fitting of these bands was obtained by the use of waxed linen tape, which made space in about twenty minutes. The clamp bands can be tightened on without cement, while all other bands require its use. After the molar bands were firmly fastened in place, the central and lateral bands were fitted on and places for the hooks marked in a line with the tubes on the molars, then the hooks were soldered on, and the bands cemented in place immediately to give time for the cement to harden while the rest of the operation was going on. (Tube hooks are sixteenth inch sections of seamed tube, opened and filed flat on one side to give a close fit.) To the left lateral, cuspid and first bicuspid, in the region of the fracture, were now carefully fitted plain bands. These bands then had soldered to them hooks in the form of an inverted J. These J-hooks were so fastened to the bands that an arch wire, fitting in the molar tubes and engaging the anchorage hooks would press the injured teeth back to and perhaps above the normal occlusion. Then these bands were cemented to place and this cement allowed to harden for about a half hour. All that now remained was to fit the arch wire, which was done by careful bending here and there to give sufficient pressure at all points. Putting this wire in place is the last and most important part of the whole operation. Three nuts are required to hold it firm, two of them being on the distal ends of the molar tubes and the third mesial to the tube on the side of the fracture. This third nut must be in place on the arch wire when it is placed in position, which was done as follows: The ends were slipped into the molar tubes, keeping the wire sprung downward until it was directly beneath all hooks, when it was gently allowed to engage them. Then firm, steady pressure sent the injured teeth, including the second bicuspid, to place, the tube hooks were bent down over the wire and the two nuts were put on and all three tightly screwed against the tubes. The arch wire then became a temporary alveolus, holding the injured parts absolutely still, giving nature every chance to work. The pressure necessary to complete the operation is of course painful. The local application of "tincture of calendula" will give almost instant relief. Glyco-thymoline was prescribed as a mouth wash and gave excellent results. The appliance was left in place for two months, the teeth being quite firm on its removal and two weeks later were apparently as good as they ever were.

Although this manner of treatment may seem complicated, it is really not so, for the patient needs almost no care after the first day; he eats ordinary food and is generally comfortable. All that is needed in the way of material is two Angle clamp D bands, a little thirty-eight gauge band material, a threaded arch wire, piece of sixteen gauge wire (German silver) to roll to half its diameter for the J-hooks, three nuts for the arch wire and a short piece of seamed tube for hooks or the hooks can be made of the flattened wire. In the illustrations shown, plain bands are used on the molars but clamp bands are stronger and do not require the loss of time to cement. Dental supply houses carry the material in stock so that the construction of this appliance need not be too difficult for the average dentist.

MIXING DENTAL CEMENT.

BY DR. A. A. WILCOX, CLEVELAND, OHIO.

There is probably no operation connected with dentistry that seems so simple as the mixing of cement. The very simplicity of the work leads to failure. Not one in ten so manipulates cement as to produce the best results possible.

A thing is more likely to be done properly if the reasons are understood why definite and satisfactory results follow a certain line of procedure. I shall, therefore, as I give directions for mixing cement give the reasons therefor.

The slab must be scrupulously clean. Every dentist should have two slabs; one to be used for cement exclusively, the other for mixing root canal dressings, etc. Cement is often ruined by incorporating foreign substances.

Phosphoric acid attacks a steel spatula very readily. Those made of German silver or non-corrosive metal are preferable on this account. Best of all is a spatula made from hickory or other hard springy wood. Such spatulas can be made in a few minutes. They are easily scraped smooth and clean, although there is some difficulty in removing the cement if it dries on and becomes hard. They should be cleaned immediately after using. It is well to make several; some with small blades to be used when only a small quantity of cement is required. The objection sometimes offered to the use of these spatulas, that the wood is ground into the cement, is not well taken. Hard rubbing is not necessary. Simply pass the spatula lightly through the mixture. The color of cement is changed by rubbing hard with any spatula, especially if steel is used, for in this case the phosphate of iron is formed by the union of the particles with the phosphoric acid. This is injurious to the cement.

After placing the necessary quantity of powder and fluid on the slab, take a small portion of the powder and work it thoroughly into all the liquid poured out. Make a paste of it. Get it smooth and free from all particles. See that every speck of powder disappears. Continue adding the powder, a little at a time, until the desired consistency is reached. All manufacturers say their cement must be mixed slowly, but *why*, they do not explain—probably they do not know themselves. Nearly all dental cements are made from a picked up formula by those who have not the slightest knowledge of chemistry. The reason why a small portion of powder should first be mixed with the fluid is, it *modifies* the phosphoric acid; that is, reduces its strength. Consequently its action is not so immediate and violent. It causes the cement to set more slowly, and prevents the evolution of heat consequent on the chemical union of the acid with the oxide of zinc of which the powder is composed. If cement did not heat it would not shrink—heat causes expansion with a corresponding contraction. Another advantage of the slow incorporation of the powder with the acid is, the cement will be much more plastic. Thorough intermixture is essential in all chemical combinations. The more closely the elements are brought into contact, and the more homogeneous the mass, the more perfect the combination. By pursuing this method we are more likely to get the proper proportions of fluid and powder to produce the best results. If the "mix" is too thin there is an excess of acid which will wash out. If too thick, there will be an excess of powder, which remains as inert material causing the cement to crumble. The only possible way to overcome these defects would be to carefully weigh out the exact quantities, a thing the ordinary practitioner has neither the time nor the means to do. It is my belief that without exception those fillings which have proven most durable were accidentally mixed in the exact proportion necessary to produce a perfect chemical compound.

The stiffer cement is mixed, and yet remain sufficiently plastic so it can be adapted to the cavity walls, the better. By following the method pointed out a much larger quantity of powder may be incorporated than would be possible if the cement were mixed rapidly. Nice judgment is necessary. All cements set more rapidly at a high temperature. It may be in a very plastic state while on the slab, but when transferred to the cavity the sudden elevation of temperature to proximately

90 degrees induces immediate chemical action, and the cement almost instantly passes beyond the stage of adaptation to the cavity. If it is spread over a large area of the slab, like paint, and a little taken up as required, setting will be considerably retarded and it will remain in a plastic state much longer than if scraped together as is usually done.

In closing I can do no better than to quote the remarks made on this subject by Dr. D. W. Barker before the Second District Dental Society, N. Y., February 10, 1902. He said:

"The mixing of cement is something that is apt to be done carelessly. If half a dozen of us would attempt to mix cement —each take a slab and some cement—no two would do it alike. Last spring, when I was at Swarthmore, on a visit to Dr. Flagg, he mixed some for me, and it was a revelation to me how he put it together. I have tried it many times, and I cannot do it to-day. He taught me a great deal about the proper mixing of the powder into the liquid. If we take a portion of the liquid on a slab and then incorporate a small portion of this powder, that portion will become wet, and many of us will immediately add some more powder. That is not right. That first portion of powder should be stirred into all the liquid until the whole of the liquid has some of the powder in it and it is a homogeneous mass; then another portion of the powder is added, and that stirred until the whole mass is homogeneous. It takes quite a little stirring, adding a portion of the powder each time, seeing that it is mixed throughout the entire lot of the liquid. There is a little knack in it. You will not be able to do it the first time probably. It should be carried quickly to the mouth. The heat of the mouth or the tooth causes it to crystallize quickly."

* * *

THE APPLICATION OF DRUGS IN DENTISTRY.

BY FRANK E. CROSBY, PHG., D.D.S., FRANKLIN, PA.

(*Concluded from page 581, October number.*)

PULP MUMMIFICATION.

I would like just here to say a few words about *pulp mummification.*

While I do not think it is a practice which should be universally used, yet in certain cases, in molars particularly, it is of much value, provided it is properly used. I have seen cases fail where this practiçe had been followed, but in every case I found that a metallic filling had been inserted directly over the mummifying paste. The result was that after a couple of years, through a recurrence of decay, the filling became defective and leaked, allowing the ingress of moisture and micro-organisms from the mouth, and these, saturating the pulp, soon set up putrefactive degeneration and trouble followed. The ingredients of the paste most used are:

℞

Thymol.
Dried alum.
Glycerine, a a ʒii.
Zinc Oxide, q. s. to form paste.

Of these, glycerine and dried alum are powerfully hygroscopic, absorbing several times their own bulk of water, and if the pulp chamber and remnants of the pulp are dried as thoroughly as possible the paste will do the rest, but to make the operation lasting the pulp cavity should be tightly sealed with cement. An omission of this will almost always result in failure. The cement keeps the roots dry and sterile and even though the main filling should fail, prevents any infection beyond it.

I think it is a method which is thoroughly trustworthy, provided there is no putrefaction previous to the application, and these precautions are used.

In a few cases of diseased roots which would not tolerate a tight stopping, I got very good results from packing this paste in and about the apices of the roots.

PULP DIGESTION.

Pulp digestion is frequently resorted to by some operators in cases where small tortuous canals render its entire removal almost impossible. It is accomplished by the use of papain, a ferment obtained from the milky juice of the caucā papaga, a South American fruit tree, and is one of the most powerful digestive ferments known.

The pulp is devitalized with arsenic, leaving it in for two or three days. The bulbous portion is then removed and the following paste sealed into the cavity:

℞

Papain, 1 grain.
Glycerine, 1 gt.
Ac. Hydrochlor (1 to 200), 1 gt.
ft. paste.

This paste is left in for two weeks, after which time the pulp is in a semi-fluid state and may be washed out with peroxide of hydrogen and fine broaches.

COUNTER IRRITATION.

In regard to *counter irritation*. For a long time it has been the custom of some to use upon the gum a mixture of iodine and aconite tinctures. Inasmuch as the aconite directly defeats the irritating effects of the iodine, I think the iodine is best used alone if counter irritant effects alone are wanted. The aconite is a local sedative, deadening the terminal sensory fibres, which are supposed to respond to the irritating influence of the iodine and produce the increased flow of blood to that part. So it seems to me that wherever good counter irritant results are obtained from the mixture it is not the aconite's fault, but rather notwithstanding it.

Counter irritation should never be carried far enough to produce a blister in order to get the best results, as this, too, destroys the nerve filaments and defeats the main object often before it has fully accomplished its purpose.

TREATMENT OF PYORRHOEA.

In the treatment of pyorrhoea alveolaris, the teeth having been thoroughly sealed, various preparations and drugs have been suggested and used as a dressing to be placed in the pockets about the roots of the teeth. Steresol is used by some. Also sulphate of quinine made into a paste with water.

A recent method of using an ointment composed of ichthyol, lanolin, equal parts, has great claims made for it, and from the nature and record of these drugs it seems very plausible. The lanolin has the property of facilitating absorption into the tissue of any medicine incorporated with it, at the same time giving sufficient body to the ointment to insure its remaining in place and producing a more prolonged effect. The ichthyol itself has the power of penetrating unbroken tissue, is antiseptic and stimulates metabolism. Its disagreeable odor may be effectually covered by adding a few drops each of oil of eucalyptus and bergamont.

ADRENALIN CHLORIDE AS A STYPTIC.

A styptic of considerable value to the medical profession has been recently recommended for dental use in the form of adrenalin chloride, a derivative of supra renal gland. It may be obtained in one ounce vials in the form of a 1 in 1000 solution, and is claimed to be the most powerful hemostatic and styptic known. Bleeding gums which are a source of annoyance in filling labial or buccal cavities, setting crowns, or scaling roots, may by its use be made blanched and bloodless and dryness may be more easily obtained.

It is also useful in controlling hemorrhage after extraction.

LOCAL ANESTHETICS.

This method of extracting has become of late probably more universal than any other and as the anesthetic most commonly used is cocaine hydrochlorate in some combination, I will speak of that first.

Solutions of this salt should never be kept for any great length of time, as the changes which it undergoes seem to increase its toxicity. This may be checked to a certain extent by adding a few drops of a preservative, such as listerine or formolin to the ounce, but in any event it is best to have your solution made in small quantity and frequently. To counteract the toxic effects of this drug, in the earlier symptoms of cardiac depression, amyl nitrite may be used, given by inhalations, and a little later alcohol, brandy or opium as stimulants to the heart.

Chloral is also directly antagonistic or ether. Morphine, however, is most favored, as it is directly antagonistic to cocaine at almost all points, and one-twelfth (1/12) of a grain of morphia sulphate added for each grain of the cocaine salt used, will greatly modify the unpleasant effects we so often see.

In addition to this antidotal treatment, cases of fainting may be relieved or restored by placing the patient in a sitting posture, but with the head bent down as far between the knees as possible. This will relieve the anemia of the brain much quicker than placing the patient in the horizontal position.

NERVANIN.

A preparation known as *nervanin* has been quite recently introduced as a substitute for cocaine as a local anesthetic. It is a derivative of orthoform and possesses powerful antiseptic as well as anesthetic properties. I have used a 5 per cent solution for extraction in a few cases and with good results. It is much safer and less toxic than cocaine, eight (8) grains being the maximum dose.

While it is somewhat slower in its action than cocaine, its anesthesia is more prolonged and in the few cases for which I used it there was no subsequent sloughing. It has been used quite extensively in general surgery and is meeting with approval.

CHLORETONE.

A preparation of Parke-Davis' called *chloretone,* has been used more or less of late both as a general and local anesthetic. It is a derivative of chloroform and acetone and resembles camphor both in odor and taste. As a general anesthetic it acts well as a preliminary to nitrous oxide or ether in very nervous patients, 5 to 10 grains being given half an hour previous to the operation. It does not seem to have as powerful anesthetic effects as cocaine, but as an adjunct to cocaine solution it preserves the cocaine and at the same time, in a measure, counteracts its depressing action upon the heart and relieves the attendant nausea.

In pyorrhoea it lessens the pain caused in scaling the roots of teeth and keeps the pockets antiseptic.

For odontalgia it is used with oil of cloves. Applied with arsenic, it controls the pain of devitalization.

TREATMENT OF CARBOLIC ACID BURNS.

An incident just came to my mind which suggested a very common accident oftenoccurring when injecting local anesthetics into the gums, when the custom is followed of previously dipping the needle into carbolic acid, as many do, to sterilize it. Unless the point is carefully wiped afterward the acid usually gets upon the lips or face and produces an unsightly burn—leaving oftentimes a scar. A burn of this kind may be aborted if promptly treated with alcohol in which is dissolved magnesium sulphate, 10 grains to the fl. oz. A harmless sulphocarbolate of magnesium is formed and the burning stopped at once if the application is made promptly.

SOME MISTAKES FREQUENTLY MADE IN THE CONSTRUCTION OF ARTIFICIAL DENTURES.

BY H. V. COTTRELL, D.D.S., COLUMBUS, O.

The object in producing this paper is to bring out some mistakes that are frequently made in the construction of artificial dentures and to determine if possible the best means of avoiding them. We lay no claim to originality in the subject matter, but merely wish to call your attention to a few of the most common errors.

Let us take, for an example, an edentulous mouth. We obtain accurate plaster impressions, obtain in wax the relation of the jaws to each other in position of occlusion, place the models accurately into the bite and set up the teeth in good position and with a great deal of care. The flasking, packing and pressing are done with the same degree of accuracy. We now insert the plates into the mouth and find to our dismay the evidence of our first mistake—they do not occlude properly; we frequently express it: "They don't work in the mouth as they did on the articulator." Closer observation reveals the fact that the last molar teeth strike while the bicuspids are free from contact. We are completely nonplussed. Had we not used the utmost care in carrying out the previous details, the inference would be that the models had not been placed accurately into the bite or the flask had been closed imperfectly in pressing. These things, then, being out of the question, we reflect further for a possible cause.

It has been our practice to mount our models on the articulator four inches forward of the condyles forming an equilateral triangle in accordance with Dr. Bonwill's discovery that the form of the jaw is an equilateral triangle whose apices are the condyles and a point between the inferior central incisors at their cutting edge. He also observes that four inches is the average length of the side of this triangle. Turning to our patient, we measure the distance from the condyles to a point between the central incisors at their cutting edge and find it to be *less* than four inches in this particular person.

We remember that we found it necessary to open the bite somewhat when we were setting up the teeth. Have these facts any bearing on the case in hand? We have proven by experiment that they have. We articulated in perfect occlusion a set of teeth after having opened the bite, and then transferred the tryplates, carrying the teeth to another articulator of identical pattern with the first and which carried models of same mouth mounted by the same bite a *less* distance from the condyles than the models on which we articulated the teeth, and we found that only the last molar teeth came in contact. The conditions were the same with the exception of the distances between the models and the condyles on the two articulators. From this it seems clear that there is absolute necessity for obtaining a definite measurement of the distance the maxillary processes are anterior to the condyles in each patient instead of relying on the measurement representing the average distance. Attention to this detail will undoubtedly insure us against one of our common mistakes.

We frequently notice in our patients an inability to perform with the incisor teeth the work designed for them to do—that of incising. We thwart nature's plans by arranging the incisors edge to edge or sufficiently near it to render it difficult to cut off food. This use of the teeth should be restored to them by arranging for a reasonable over-bite—1/16 to 1/8 inch.

The complaint is sometimes made that when exerting great stress on one side of the mouth—such stress as is required in proper mastication—that the plate drops on the opposite side.

It may have been the practice in relieving this difficulty to grind off the cusps all around the arch, making the teeth occlude as two planes. From the standpoint of mastication, this limits the usefulness of the entire denture, since less crushing force can be applied by plain surfaces than by utilizing cusps and sulci.

Now, can we so set up the teeth that the greatest usefulness of all will be realized without in any respect impairing the usefulness of any?

We think this may be done by so arranging them that when the incisors are in contact edge to edge there will also be contact between the molars. And when performing the act of mastication, which is properly lateral motion, that there will be contact of molar cusps on both sides with opposing molar cusps the same time that there is contact of incisors.

By this arrangement the greatest crushing force is obtained, because of the possibility of compressing the food into the sulci by cusps of opposing teeth. At the same time there is not that annoying feature of the plate dropping on one side of the mouth.

To accomplish this result it is necessary that the cusps of molars and bicuspids should be almost as long as is the over-bite. This plan of Dr. Bonwill's is objected to by some who claim that the teeth are weakened perceptibly by the grinding. They especially refer to the bicuspids. By observing the demonstration which you have before you, you will see that the strength of the teeth has been in no wise affected by this process. Instead of a groove of even depth being cut entirely through the bicuspids, only the mesial and distal sides have been ground, thus preserving practically the full strength of the tooth. In the molars the grinding is only a widening of the sulci.

Better results may be obtained by the use of larger molar and bicuspid teeth than are sometimes used, because of not only the added strength but of the greater masticating surface they furnish. We also realize the best good from the denture in which we have provided the greatest number of points of contact in whatever position the jaw may be placed. It is not merely necessary to arrange for contact at three points and that, too, in three definite positions, but there should be contact in any position that is used in mastication. It is possible, I think, in all cases to have all the molars touching at practically all times. By more careful work we may arrange the bicuspids in the same way.

Bonwill states that the normal size of teeth to be used in this arrangement is determined by measuring the combined diameters of the six lower anterior teeth when placed in straight line and making this equal to the combined diameters of the bicuspids and molars on one side. Teeth of this proportionate width have been used in the demonstration.

So far I have dwelt on nothing in this paper aside from the utility of our dentures. Of the esthetic side, time permits me to only make mention.

We make a grave mistake if we arrange the anterior teeth with absolute regularity in all cases. We make our patients all look alike. We should employ our artistic ability to guide us in the selection and arrangement of teeth and seek to make our results as nearly as possible to correspond with the temperament of the individual.

"HOW I PROCEEDED TO MAKE A RICHMOND CROWN FOR A SUPERIOR RIGHT LATERAL BEFORE REMOVING A BROKEN DAVIS DOWEL FROM THE ROOT."

BY HARRY E. CRADDOCK, D.D.S., ORLAND, IND.

Reason why this was done: Patient wanted work started at once, but could not spend time at first sitting to have broken pin removed, as pin was broken off so far up in root that it could not be grasped in any way to loosen it.

I first ground root to suit, in usual way, took measurement and made cap, placed cap on root and with a small burnisher burnished cap down on end of root to give depression or position of root canal. I now used a No. 1 round bur, drilling hole in cap in center of depression, and then took bite and impression and dismissed patient.

I now poured impression and separated cast, then let cast dry for twenty-four hours, and in this time I made my dowel of iridio-platinum wire, filing it to a four sided taper; now with engine burs I drilled down into model through the hole already in cap, care being used not to get hole in cap too large and to follow in line of imaginary root. Next I mixed a little cement (thin) and worked it down into hole in model and then drove the square dowel into hole as far as required and cut off a little above cap. The cement was allowed to set well and then all excess was trimmed off. It was mounted on the articulator, a facing selected and finished in the usual way.

After the case was removed from investment I found it in perfect shape, no solder having reached inside of cap, dowel was exactly in place and all joints good.

Patient returned and after quite a struggle the old dowel was loosened by drilling around it carefully with very small burs and removed. Crown went to place in good shape and is now doing good service.

STERILIZING INSTRUMENTS.

BY W. H. ALBRIGHT, D.D.S., BELLEVUE, O.

Sterilizing instruments was always a bugbear with me until the past year. My present method is so convenient that it is almost a pleasure to keep instruments clean. There are so many things to worry a dentist that he usually appreciates anything that proves a time-saver. A heavy glass dish, about four inches in diameter and three inches high, mine is a cover to a chemical jar from the drug store and will not tip over even when full of instruments. This is filled each morning with fresh water and twenty-five drops of strong carbolic acid. After an instrument is used it is dropped into this solution until I get time to dry it. Mouth mirrors are left in all day, except those in use. Instruments do not rust if left in the solution for twenty-four hours. It will surprise you to see how little the action is. Fill your hypodermic and water syringe with each fresh solution and let it remain; it will keep them sterile and may save some one a sore mouth. This solution will sterilize an instrument in one half the time it takes to boil it. (See DENTAL SUMMARY, May, '92, page 266.) Boiling water is all right for coffee, but it don't agree with rubber handled mouth-mirrors, and I like to have mouth-mirrors clean if nothing else is. The additional heat from vulcanizers makes our rooms into diminutive hells, and we don't need sterilizing cans. You will find many ways to use this carbolized water. Give it a prominent place on your cabinet, and you will never regret it. Your patients will enjoy it also. Empty the waste water into the cuspidors and they will keep sweet.

SAVING A TOOTH NEARLY TWO HUNDRED YEARS AGO.

BY DR. L. O. FRANTZ, ALLIANCE, O.

About two years ago I obtained possession of a number of old dental books, all published prior to 1860. Among the number was a copy of Fitch's Dental Surgery, by Samuel Sheldon Fitch, M.D.; Surgeon Dentist, second edition, published 1835, by Carey, Lee & Blanchard, of Philadelphia.

On a recent Sunday afternoon I was reading some of the methods of our grandfathers when I came across the following that I thought might be of interest to some of the readers of the SUMMARY. I produce the article verbatim. The article is a quotation from the works of Fanchard, the celebrated French dentist and author, and was published in 1728 under the title: "Le Chirugien Dentiste on Traite des Dents," etc.

"OBSERVATION ON A CANINE TOOTH, AND ON THE PUS THAT WAS FOUND IN ITS CAVITY, WHICH WAS EVACUATED BY A PERFORATING TREPAN.

"The 12th of November, 1724, M. Tartanson, regular surgeon of Paris, and ancient Provost of the Society, was attacked with a cruel pain in the incisor and canine teeth of the lower jaw. He called upon me to know what so sharp a pain could proceed from, without the teeth being carious, being only a little worn at their extremities. After having examined and touched them with my sound, I knew which one it was, and I assured him that he had but one canine tooth only, on the right side of the same jaw, that was sensible, and which caused him this severe pain, which proceeded from this tooth being more used than the others at its extremity, the nerve that was contained in its cavity having been more exposed to the air than those of the other teeth. I told him that I was persuaded there was purulent matter contained in this cavity, and that he ought to have the tooth perforated for its evacuation; that by this means the pain would soon cease, and the tooth be preserved. After I had persuaded M. Tartanson of the utility of this operation, I took a graver that I used as a perforator; when I carried the point to the extremity of the tooth, in the place where its cavity was, and turning it to the right and left, and left and right, I commenced opening this same cavity; at length I took a drilling instrument, which I made use of for turning in the same manner to widen and deepen the opening which I had already commenced, and as soon as the cavity of this abscess in the tooth was opened there came out of it considerable pus and blood, which this person saw by means of a mirror, in presence of Sire Lassegee, his son, surgeon. This appeared rather singular to M. Tartanson, although well versed in his art, and indeed it is not common to see this disease. If other authors have reported, before me, diseases nearly similar, I do not believe that they thought of before making use of proper means to cure it, of which the principal is to trepan the tooth, as I did on this occasion, to give exit to the matter shut up in its cavity.

"M. de Nain, of whom I have already spoken, had many teeth attacked with the same malady, which gave him much pain. I cured them all by the means I have just mentioned. Some months after I plugged his teeth, without their having since given him the least pain, and he can use them like the other teeth.

"Since then, Madame, of the religious order of Saint Bennet, Convent of Chasse-Midi, being attacked by a severe pain caused by a similar malady of the first little molar tooth on the right side of the upper jaw, she had recourse to me. I made use of the same method as before, with so much success that the pain ceased almost immediately, and this religious woman preserved her tooth.

"It should never be neglected to trepan a tooth on a similar occasion; whether this operation is performed on the skull or other bones to give exit to the matters which are diffused in the cavities of these bones, where they are found contrary to the order of nature."

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SOCIETY PROCEEDINGS

NORTHERN OHIO DENTAL SOCIETY.

THE USE OF TINFOIL AS A FILLING MATERIAL.*

DISCUSSION.

DR. NEIL BISHOP: I had an opportunity some time ago of refilling an approximal cavity in a lower bicuspid, which had been filled over twenty years previous with Robinson's fibrous and textile foil, and gold. This Robinson's foil, to all appearances, is shredded tin, pressed into sheets. The filling had failed on account of fracture of cavity wall, allowing the gold to come out, but the tin, which had been placed over the cervical margin and filling about one-third of the cavity, was firmly in position, and on removal the tooth substance beneath was found in a good state of preservation.

The exposed portions of the material were discolored, but the tooth very little. There are certainly advantages in the use of tin at cervical margins, not only on account of its therapeutic value, but because of its better edge strength, allowing the use of beveled margins, and the opportunity of a smoother finish, resulting in less irritation of the gum where cavities extend to, or under it. This cannot be so well accomplished with amalgam on account of the brittleness of its thin edges, even were there no "spheroiding tendency."

The use of tin in connection with a matrix seems very satisfactory, as, with proper instruments, it can even be forced into acute angles, but the matrix should not be held in position too tightly, but allowed to give enough to furnish surplus for burnishing over margins.

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*Paper presented in September number of THE DENTAL SUMMARY.

Doubtless many of us have taken much pains in the preparation of cavities, and insertion of amalgam fillings, to be well pleased with the result, one year, or four or five years later, but after eight or ten years we begin to notice a change. There may not be recurrence of decay, but the filling is beginning to be unsightly and seems to be drawing away from the cavity margins. It may preserve the tooth ten years longer, in fact I have seen plenty of amalgam fillings that were *of age* and doing good service, but if that filling had remained just as it was *put* at the end of ten or twenty years, it is likely that our bump of conceit would have been much greater.

If tin, or combination fillings of tin and gold, will do this and still have as much therapeutic value as amalgam, more, even, than soft gold, and a lesser conductivity than either. It seems that if it *is* a little old fashioned its more general use is indicated. Its discoloration is unfortunate but rather necessary for its tooth preserving qualities. There is truly ample opportunity for its use in molars and bicuspids, and an occasional glimpse of a dark edge will be less hard to bear than recurrence of decay. I am watching a few experiments in combining tin and amalgam. First, filling the cavity about two-thirds full of tin, and finishing with amalgam (thoroughly wafered) to resist attrition. I am satisfied that such fillings are a little more comfortable in highly sensitive teeth, but whether they will otherwise be any advantage over an *all* amalgam filling I am not so sure. I would be pleased to hear from any who have had experience with this combination.

Dr. W. Buzzell: I am convinced that tinfoil as a tooth preserver is superior to any other metallic filling. It has positive therapeutic properties that preserve teeth from the reoccurrence of decay which are to be found in no other metal used for filling teeth.

It is so soft and plastic, so to speak, that it may be forced into contact with the cavity walls with something of the ease of plastic materials, and besides the material seems to afford protection against decay, even when the filling is not as perfect as it should be. I have often removed loosely inserted, slightly condensed tin fillings and found entire absence of decay.

On account of this property, I often pack it against frail, chalky walls, when I do not think it advisable to sacrifice so much tooth substance as would be necessary to get an absolutely sound wall.

As has already been mentioned, it is too soft to stand well when exposed to much force; but when for this reason, or for esthetic reasons, its use is not contra-indicated, I know no other metal so desirable for tooth filling.

In my own practice I use it in crown cavities in molars, either alone or combined with gold in the form known as "tin-gold," and in approximal cavities in molars and bicuspids; filling the cervical portion with tin and finishing with gold, thus securing the benefits of the protective properties of the tinfoil in that portion of the tooth most liable to secondary decay, and at the same time the desirability and beauty of gold in the exposed portion of the cavity. I sometimes use it under gold in the cervico-lingual corner of approximal cavities in incisors when they are of low quality, or especially prone to decay. Of course, care should be had not to put tin where it will be exposed to view, on account of its dark and unsightly appearance.

I have sometimes observed that in such combination approximal fillings the tin portion gets cupped out so as to make an apparent cavity, and have sometimes taken them out only to find the cavity walls still sound.

Whether this cupping was due to insufficient condensation or the tin being subject to disintegration, I am unable to say.

I infer that the writer considers that it requires the same expenditure of time, skill and nervous energy to insert a tin filling as a gold filling.

With this I do not agree. On account of its superior softness, almost amounting to plasticity, I am sure one can fill much more easily and rapidly with tinfoil than with gold.

I use No. 4 foil, folded three times and cut into strips of convenient width and fold back and forth across the cavity, condensing with hand pressure, or preferably with mallet. And the best mallet for gold or tinfoiling is the little lignum vitæ mallet; price 30 cents. That is what I use, and the instrument that I like best is better than some other instrument that someone else uses. No doubt others have observed this great truth. Human nature is pretty well distributed.

In filling approximal cavities I always use a matrix, and know of nothing more generally useful than those made by J. W. Ivory. With tinfoil, as with any other material, the importance of careful preparation of the cavity, and accuracy of adaptation, cannot be too strongly emphasized. Carefulness, honest, painstaking exactness make the difference between the dentist and the bungler.

Dr. J. F. Siddall: I want to say just a word about tin. If you will make a wheel of tin like a small emery wheel, and adjust it on a foot-lathe, with a chisel you can turn off and have freshly cut shavings of tin, which will weld better than any foil you can get. These wheels ought to be in the market, for they are easily adjusted to a lathe, and then one could cut tin when he wanted it and always have it fresh. It will take a little practice to turn those shavings, however.

Dr. H. L. Ambler: Someone has said something about the discoloration of tin fillings, but the fact is that some teeth which are filled with tin do not discolor at all, and the tin does preserve the teeth. I bring this matter up because one gentleman stated that it was necessary to have the tin fillings discolor in order to have them save the teeth. I think it is well to have this recommendation in mind in filling with tin, but oxidation of tin fillings aids in preventing further decay. The new tinfoil which we have at the present time wears for many years—I think I would be safe in saying two or three times as long as the old-fashioned foil, and it preserves the teeth just as well. Here is an idea about conserving the wearing properties of tin—and you can save many of the permanent molars by filling them with tin, for it is well-adapted to that—the idea is, you fill occlusal cavities with tin only, and then drill out in the center of the tin a small cavity and take gold foil and mallet it into this cavity; the gold does not touch the tooth structure. This is rather a new method to the majority, I think; the first one to speak of it beside myself was Dr. Harvey, who has practiced this method for sixteen years or more. I have a specimen here in my pocket worn in the mouth sixteen years, as Dr. Harvey's record shows, which I shall pass around to let you all see what I mean. This method works well and you need not be any afraid but it will wear, and the gold will stay there. You can take one of these fillings and put a knife between the tin and gold, and you cannot separate them. Neither can you separate the tin and gold when you fill the cervical portion with gold and the occlusal with tin.

Dr. Buzzell: Is the entire surface covered, or is the gold placed just in the center?

Dr. Ambler: The center only has the gold in it, the cavity margin is not touched at all by the gold.

Dr. Siddall: Does it harden?

Dr. Ambler: Yes, to a certain extent it does, electrolysis takes place, but the gold prevents the wear upon the tin center anyway. Another thing I want to tell you, is how to prepare tinfoil for filling. Any man who rolls or twists up tinfoil has a mass filled with air, and no matter what he uses to get it out, he has to pound out every single bit of wrinkle, which is made by such handling, and pound hard, too. I do not say he cannot do it, but I say he will have to work just as hard again as he would have to to fill a tooth with properly folded foil. Now the method I am going to tell you about has been used by a number of the gentlemen who are present, and they can vouch for this method. You take a sheet of tinfoil and cut off a strip clear across the foil, any width you wish, and lay it down on your napkin, and take your spatula and fold it over and over to any desired width, making a tape; fold the end of the tape once or twice upon itself, and place where you start filling. Then begin and fold it into the tooth, malleting it down, a layer at a time—and malleting each layer firmly before you put in another fold, just the same as you would if you were using a strip of cohesive gold, and you can put it in perfectly in this way, and not work half as hard as by other methods. And I want to say that tinfoil is more adaptable for many places, and you can make a tighter filling in a distal cavity than you can with gold. I usually use a matrix of thin German silver, which gives a little, so that you can bring the tin out over the margin, and then when you take the matrix off you can burnish the tin down and make a smoother filling than with the other way. One gentleman stated that he had seen fillings of tin which were not perfectly made, but he had burnished them down, and in later years had seen them again, and found that they had saved the teeth. He also said that he thought the tin filled the tubuli by oxidation, and that was what had helped save the teeth. Now that is just my experience with tin. There is just moisture enough in a tooth to cause oxidation of the tin and prevent decay.

Another idea I wish to give you is this—where you place tin at the cervical margain, and gold for remainder of filling, be sure and use enough (generally one-third or one-quarter of the filling), because if you do not the chances are that when the patient comes back, you can take a probe and pass it in between the gold and margin of the tooth, showing generally that a very small amount of tin is destroyed by electrolysis.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

A METHOD OF REMOVING CEMENTED-IN CROWN-PINS BY CHEMICAL MEANS.

BY T. L. PEPPERLING, D.D.S., ST. LOUIS, MO.

The difficulty of removing a crown-pin which has been firmly cemented into a root, without enlarging the root-canal and at the same time do away with the danger of cutting through the side of the root when removing the cement with a bur, led me to try stronger water of ammonia as a solvent for the cement.

Apply the rubber-dam to the root, using a piece large enough to well cover the nose, so as to prevent the patient from inhaling the irritating fumes. Wrap a wisp of cotton about a broach, saturate it with ammonia water and apply it to the cement. As soon as the cement becomes soft, remove it with a sharp-pointed instrument, an old, stiff broach or a root-canal explorer having been found very useful by me. Continue to dissolve and remove all softened particles until the pin is well exposed. All you will then need to do is to take hold of the crown-pin with a pair of pliers and remove it. The length of the operation depends upon the solubility of the cement in ammonia water, usually from one to two hours' time being required. The results have been very gratifying to me.—*Dental Era.*

FORMALDEHYDE PASTE FOR ROOT CANALS.

BY DR. J. H. BEEBEE, ROCHESTER, N. Y.

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Cocaine. hyd.	
Thymolin	*aa.* grs. xv.
Misce exact. terendo.	
Adde	
Formaldehyde (Merck)	gtt. x.
Oxide zinc	grs. xxx.
Fiat pasta.	

The above is the formula (somewhat modified) of Prof. Bennecker, of Prague, found on page 460, *Dental Cosmos,* for May, 1899.

As seen by the wording of the formula, the first two ingredients must be thoroughly mixed in a mortar; they form a thick, syrupy, transparent fluid. After this the other elements are added. It is used for filling and for treatment of all root canals and chambers.

The mode I have adopted for filling the canal is to wind silk fiber on a broach, pass it to the apex of the root, and then release the broach as is usual in treating any canal, finally packing this saturated fiber in until the canal is filled, and in posterior teeth even the pulp chamber.

This substance hardens into an almost insoluble putty in about a month and has to be renewed. This hardening, together with its antiseptic properties, renders it of greatest value as a root filling. On account of this I use silk fiber as a vehicle, for, in case it is desirable to remove the filling of the canals, it can be done. Were a less strong fiber used it might be impossible. Some may say, Why use any fiber? Well, why not ride on a freight train rather than a through express? One can get there quickly, and I see no objection to the fiber.

I have used this with great success in cases where it was difficult to find the canals, or where they were too small to be filled with anything—and such cases are found, as every one who is not a liar knows, simply packing the saturated fiber in the nerve cavity and filling over it; usually, however, in such cases with a filling that is easily removed. Of course, I do not advocate this for general practice, but only in cases such as mentioned.

In regard to keeping this preparation: It should be kept in one of the glass-capped preparation bottles, and the joint between cap and bottle oiled or greased with cosmoline, otherwise a small amount of the paste getting into the joint makes it impossible to open the bottle. On account of its insolubility it is very difficult to clean the bottle, and I usually have two bottles, one of which I keep in use and the other soaking with sulphuric acid.—*Dental Office and Lab.*

ALVEOLAR ABSCESS WITH FISTULA ESTABLISHED.

BY E. J. HAMMOND.

Case.—On March 14th, Mr. K., aged 22, came to the clinic for the purpose of having his anterior teeth filled; but upon examination of the mouth, which was in a general unhealthy condition, a fistula was found.

History.—Patient stated that about two months before he had had an acute abscess and had gone to a physician for relief. The physician had lanced at a point nearly over apex of root of upper right lateral. Since that time pus had occasionally been discharged from the opening.

Diagnosis.—The signs and symptoms pointed to a chronic abscess on the upper right lateral, which had a large cavity, was somewhat discolored and slightly loose, but upon closer examination the fistulous opening was found to lead from the right central.

Treatment.—The projecting frail enamel walls were cut down to give better access and the canal was cleansed of its putrecent contents. With a hypodermic syringe, and only after repeated efforts, carbolic acid was forced through the infected tract. Care was used that the acid did not get upon the mucous membrane. A dressing of hydronapthol was then sealed in and the patient dismissed. At the next visit, one week later, the tooth had given no further trouble, but there was still a slight odor. The tract was washed out with three per cent. pyrozone and a dressing of carbolic acid and iodoform on cotton was applied. At the next sitting, on April 4th, upon removal of the dressing no odor was detected. The condition was so much improved, the fistula having closed, the tooth having become tight, that it was decided to fill the canal at this sitting. Before filling, however, a few wisps of cotton saturated with a five per cent. solution of formalin was placed in canal and allowed to remain for about ten minutes to make sure that the canal was thoroughly sterilized. Then it was flooded with ninety-five per cent. alcohol, which was evaporated by hot air blasts. The canal was then filled with oxychlorid of zinc and a temporary filling of gutta-percha placed in the crown cavity. There has been no trouble since the canal was filled and the abscess is apparently cured.—*Penn. Dental Journal.*

THE COWAN PORCELAIN AND GOLD CROWN.

BY DR. G. T. MOORE, GENESEO, N. Y.

The crown described is adapted only to those cases in which the bite is long, that there may be a sufficient body of porcelain to withstand mastication.

The root is prepared as for an ordinary gold cap, excepting that the buccal portion is ground down below the gum line as for a Richmond incisor. The seamless band having been fitted, is placed on the root and tightly packed with modeling compound, and an impression and articulating bite taken in the usual way, the models being mounted in a crown articulation.

Before pouring the model, however, the cap is filled flush with a mixture of sand and plaster and allowed to set, when it is soaped that the crown when ground may easily be removed from the model. The gold band is trimmed to the gum line on the buccal aspect and to follow the height of the prepared root. To this band an ordinary plain rubber biscupid or molar tooth is ground, first grinding the pins away, as they are not depended upon at all for the attachment to the gold or backing.

When thus prepared, a dovetail is cut with a carborundum disk clear around the tooth, about one thirty-second of an inch from the contact edge, and a backing of platinum foil such as is used for inlays, or of pure gold, is burnished on the ground surface of the tooth and into the prepared dovetail, the free edges of the foil extending beyond the dovetail margin sufficiently to allow the investment to hold the backing in place. A drop of soft wax is now placed on the buccal points of the contact between the band and the tooth, just enough to hold them in position, and the crown removed from the model, invested in sand and plaster half way around, the wax removed and the borax applied to the exposed portion of the band. Then this backing which has been burnished into the dovetail, is soldered with twenty-karat solder.

When cool the tooth is reinvested, exposing the portion which has not previously been soldered, and the same procedure gone through with, the result being a porcelain crown with a reinforced gold band. If it is necessary to use a dowel, this may be done by making a cap for the band in the usual way, and soldering the porcelain to it as has been described.—*Off. and Lab.*

AN IDEAL BICUSPID CROWN.

BY RICHARD L. SIMPSON, D.D.S., FINCASTLE, VA.

The bicuspid here described is more easily made than a porcelain one, and fulfills the three requirements demanded of it:

The root is prepared as for an ordinary Richmond crown; the band made, festooned, fitted, and ground off to be under the gum at the buccal surface, but rather wide at the palatal. Solder the floor to the band with 22-karat solder, leaving a slight projection of the floor like a brim on a straw hat. Trim the mesial and distal parts of the cap so it will pass the approximate teeth to its position on the root; solder the pin to the cap, and then fill in with 20-karat solder the angle formed by the band and projection of the floor. Replace on the root, and take the bite and impression.

After mounting on articulator, select a suitable *saddleback* plate tooth, making sure that its palato-buccal dimension is long enough; grind to its proper position; back it with 24-karat gold; place it on cap; invest and fill the V-shaped space with 18-karat solder, letting the solder melt by heating the investment from the bottom.

The reasons for reinforcing the band should be only too evident, as the ordinary band never restores as much tooth as has been cut away, and in case the gold should happen to show, its appearance is that of a gold filling. (Who ever saw an ordinary band look like a gold filling?)

The buccal curve of the crown is continuous from the edge of the band to the edge of the porcelain cusp.

The solder at the palatal part of the band does not run off in the final soldering, being prevented by the floor of the cap.

A saddleback tooth almost never breaks in soldering, and its strength when so used is beyond question.

A crown so made is a thing of beauty, and will satisfy the most esthetic among us, to say nothing of the patient.—*Cosmos.*

CARE OF LOCAL ANESTHETIC SYRINGES.

DR. G. B. PERRY, CHICAGO.

It is my habit to use a syringe for the injection of local anesthetics *only*, another for pyorrhoeal treatment and others for specified purposes, as I feel one hypodermic syringe for general use is more difficult to keep sterilized and much more likely to be contaminated.

My hypodermic syringes are fitted with platinum points and immediately after using them I pass the point through a Bunsen flame, bringing it to a red glow, which destroys any microbes that may have collected upon it. The barrel of the syringe can be kept in an aseptic condition by thoroughly cleaning it and using a good liquid antiseptic. Too much care cannot be exercised in making a hypodermic injection I *invariably* protect the parts in the immediate vicinity with cotton rolls, pieces of bibulous paper, strips of gauze or wads of aseptic cotton, preferably the cotton rolls, as they are readily adjustable to the irregular lines of the mouth, to prevent *any* of the solution used for injection from trickling into the throat or onto the tongue. This precautionary measure is of the greatest importance in preventing the unfortunate results which are ofttimes due to the careless handling of the syringe. Another very important feature in its use is the *expelling* of the *air* from the barrel of the syringe *before* the puncture is made, thus avoiding the expansion which it causes when forced into the tissue. I never partly or wholly draw the plunger back while the needle is inserted, thus preventing the withdrawal of any septic matter that may be in the immediate vicinity of the puncture. It is within two years that I was told by a dental surgeon that a young girl sixteen years of age had been inoculated with syphilitic germs by a hypodermic syringe at a dental parlor in Chicago, where she had gone to have a tooth extracted, and it was readily recognizable from the colony of syphilitic microbes surrounding the opening made by the needle, as shown by a microscopical examination.—*From report Dental Review.*

THE CARE OF HYPODERMIC NEEDLES.

DR. VAUGHAN.

I will try to give some of my brethren a few useful hints which experience has taught me. I offer a word of advice about the care of hypodermic needles. If you will spend ten cents at some music store for a spool of wire violin string (the E) you will have steel wire enough to last a lifetime; remember the spool wire E is a shade smaller than the single length E that you find in stores. Cut off about a foot of it, draw a knot in the end around a tack. Drive the tack in your shelf, and after you have used a needle insert the wire through it, and sweep the needle up and down or back and forth once or twice, wiping the wire with antiseptic gauze at the same time, or even with the fingers, puts a dry bright burnished surface through the bore of the needle; and you find it ready for use when it is needed. I have known one needle to last for more than one year, and used three times a day; and still seemed to be in good condition. When a little lint or other obstruction chokes the needle, patient boring and drilling by twisting the needle on the wire, generally soon opens the hole and allows the wire to pass through.

You may cut off another length of a foot or more, take a small tin box the size of a dollar or less, fasten a piece of hard wood in the bottom of the box, draw a knot in the end of the wire, let it pass through the stick wedged across the bottom of the box. Take the box in your teeth or between your knees, and cleanse your needle as before, when the wire was fastened to the shelf. After you have used the box wire coil it round and round in the box and put the lid on. You can then carry it with you in your pocket or purse as a coin.

Needles may be sharpened by using a piece of broken slate dressed out one-half inch wide and two or three inches long; this can be carried in a memorandum book or anything of the kind, and use as a whetstone for the needle points.—*Wisconsin Medical Recorder.*

CEMENTING OF LOGAN CROWNS.

BY C. E. LENNOX, D.D.S., TORONTO.

Now, it being granted that I have prepared the root and fitted the crown as closely as I am able, I place the crown on the root in the position it is to occupy, and note particularly its position in relation to the adjoining and occluding teeth, and also in relation to the gum margin, so that when I come to cement it on I may bring it to exactly the position it is fitted to occupy.

Having the position well in mind, I remove the crown, wash in water and alcohol and dry thoroughly, and lay it in a position on my table that I am sure I can pick it up the moment I want it. Then I place my glass slab, with liquid and powder already on it, in a handy position, and put a strip of cottonoid where I can get it easily. I prefer cottonoid to napkins, because you can cut it any size you desire, and your patient, seeing you cut it fresh from a new piece, it has the appearance of being more cleanly, although perhaps not actually so.

Having got thus far, I wash out the root thoroughly with warm water and then with pyrozone, 4 per cent., which will usually prevent any hemorrhage or weeping of the gum, and where there is any reason to expect any particular hemorrhage touch the gum with adrenalin chloride; then I apply the napkin, wipe out the root, and swab the canal and end of root with alcohol, and dry thoroughly.

Leaving the napkin held in position with the lip and opposing teeth, I quickly mix my cement, place some around the rim of the crown, and carry some into the canal with a worn-out canal cleanser, and then insert the crown, bringing it into correct position with one movement, so as to avoid having to shift the crown sideways or rotate it after the pin is fully up in the root. After the cement is thoroughly hardened, I break away the excess with a sharp-pointed instrument, and if necessary pass a piece of silk between the teeth in order to bring away any bits which may have lodged there.

Now, while this is the usual procedure, there are one or two variations which I sometimes use; one is where the tooth is badly decayed below the margin of the gum, with considerable enlargement of the canal, while in a case of this kind I prefer to use a crown in which the pin is screwed into the canal and the root built up with amalgam around the pin, such as the How or Bonwell crowns, there are times when it is necessary to replace or reset a crown where considerable decay has taken place. In a case of this kind I barb the point of the pin, build a cone of soft amalgam around the base, place cement in the canal, and insert as before. After allowing the cement to harden, I trim and burnish the amalgam smooth.

I have had very little experience with gutta-percha, but so far as I have used it, have found it very satisfactory, especially where there has not been very much enlargement of the root. In using gutta-percha, I prepare the root as for cement, smear the pin with chloro-percha, heat to drive off the chloroform, place sufficient gutta-percha in the root, heat the crown and press to place, afterwards trimming off the excess with a warm instrument.

I suppose it would be as well to say a word about the cement I prefer. I have used a great many kinds with more or less satisfaction, principally less; one difficulty being the great variation shown by different samples of the same cement with regard to the speed with which it sets. I prefer a quick-setting cement, and when I get one sample of a cement highly recommended as the very strongest crown cement ever introduced, which sets beautifully in less than a minute, whilst the next bottle you try won't set in twenty-five minutes, you begin to realize that dentistry is not all that it might be. I use for a spatula a piece of pine split off a lath and whittled to a thin blade.—*Dominion Dental Journal.*

TO CURETTE A DISEASED ANTRUM PAINLESSLY.

BY DR. A. C. HEWITT, CHICAGO.

The opening to the antrum should be made of ample size. The soft tissues around the opening should be anesthetized by hypodermic injections as close to the alveolar borders as practical. Preparation for the injections should be made by topical application of an anesthetic, the constituents of which would preclude its use hypodermically. Some of you have heard of com. cocaine pigment. It is still my favorite for topical use, never for hypodermic. A simpler one I will name:

Echafolta Compound Obtundent.

℞—Echafolta, ʒiij;
  Cocain hydrochlor. (10 per cent. sol.), ʒij;
  Fl. ext. cactus grandiflora, ʒij;
  Glycerin, ad ʒj.
Sig.—Apply topically to parts, as dry and free from mucous as possible.

A ball of absorbent cotton wet with the obtundent should be rolled around in the cavity to moisten as much of the cavity tissues as possible. Then administer the general analgic, and your patient is ready. If properly instructed previously, he will be entirely quiet or will request more of the analgic, in which case it can be safely given.

The operator can then, with the curette, quietly exercise that delicate sense, touch, so essential to success.

CAPSULE IMPLANTATION.

BY ROBERT EUGENE PAYNE, M.D., D.D.S., NEW YORK CITY.

Select a trephine about two-thirds the size of the normal root; cut a socket about two-thirds the depth of the normal socket. This is slightly enlarged at the bottom. The capsule should be the size of the trephine used. A seamless capsule of silver, gold, or lead is placed in position and filled with kneaded rubber.

Select a plunger nearly the size of the capsule, and by gentle pressure and lightly tapping the plunger the kneaded rubber will spread the thin capsule to every thin equality of the socket, and in this way it will be securely held in position. Into this fit a continuous gum porcelain tooth, porcelain root, and permanently cement it in the capsule. I use a two per cent. solution of cocaine before cutting the socket, and use every care to sterilize before permanently fastening the capsule in place. The operation is completed at one sitting, gives no pain in spreading the capsule, and the tissues heal kindly around it. The tooth is firm at once, it not being necessary to ligate it.

Various methods have been used to implant capsules by burnishing and otherwise, but there is no record of a seamless capsule spread in the manner above described. The operation is yet in the experimental stage, and I cannot report successes. Failure I believe to be due to an imperfect capsule, those used being too thick and rigid. I am now trying some very thin capsules, and hope to be able to report some cases at your next meeting.

The fact that Dr. Von Bergman, of Berlin, assisted by Dr. Mahl, of that city, have introduced metal splints, held by silver screws and wire to retain the fragments of the lower jaw in position after resection, that have been retained for years, leads me to believe that the capsule implantation, if carried out upon proper lines with proper material, will yield a successful capsule implantation.

At present I depend for implantation upon mature, hard, straight, natural roots, two-thirds the size of the normal root, to which I attach a porcelain crown. These roots are more lasting than any I have used during the past ten years. I have three cases, three teeth each, implantated four years ago, under very unfavorable circumstances, complicated with pyorrhea, that are in perfect condition to-day.—*International.*

SOAPSTONE.

BY DR. C. R. SCHOLL, READING, PA.

At a meeting of the Lebanon Valley Dental Association of Pennsylvania, held about ten years ago, and frequently since, the danger of using rubber dam without thoroughly washing off all talcum or soapstone was thoroughly discussed, and many sore mouths after operation traced directly to its presence on the rubber. It is well known that talcum contains a trace of arsenic, and I would advise as a substitute, and as more efficacious, a cone of Castile soap, which is first dipped in water, then passed over the surface of the dam at the places punched and which is applied next the teeth. One trial is sufficient to prove its utility. Never attempt to apply dam without its application; it is a clean, neat act.—*Office and Laboratory.*

SUGGESTIONS

PRACTICAL SUGGESTIONS ABOUT BRIDGE-WORK—F. HARRISON.—The liability of arsenic to destroy the periosteum at the apex of the root or roots is not unknown. My experience is that where crowned teeth do fail, it is largely due to the fact that necrosis of the apex of the root has taken place. It is not scientific to make a cavity in a non-carious position and fill it to form the abutment of a bridge, it would be as absurd to cut out a cavity in the distal surface of a healthy tooth because the mesial surface of the contiguous tooth was carious, so that only fillings might be in apposition.

In the construction of bridges, no excess of material should be used, but care must be taken that all parts which have to bear any strain, or perform the office of mastication, should be sufficiently strong to more than resist any possible tension or attrition.

Much discredit has been brought upon dental bridge work by want of care in construction, allowing food and *débris* to collect in situations from which it is troublesome, or difficult, or impossible to remove. This must be avoided by making all surfaces rounded so that no lodgment can take place.

Where the teeth of the bridge come into contact with the adjacent teeth in the mouth, they must be contoured and fit accurately together as in the case of the normal organs. No part of the bridge should rest upon the gum, for it is quite as necessary that the gingival mucous membrane should be healthy and clean as the metal of which the bridge is composed.—*Extracts Jour. B. Asso.*

INSERTING TEMPORARY STOPPINGS—J. W. JOHNSON.—After the cavity is prepared for the filling, whether for sealing in dressings or for more permanent work, the stopping is warmed sufficiently to make it soft and placed in the cavity with the ordinary instruments. A pellet of cotton previously prepared by rolling tightly is now grasped with the pliers and pressed against the filling. The yielding cotton will cause the stopping to spread laterally and fill all parts of the cavity, and does not adhere as a hot instrument would.

This method will apply to cement and amalgam fillings as well as the preparations of gutta-percha, and the surplus amalgam and cement can be readily dressed off with cotton in this way.—*Review.*

TO PRESERVE THE PROCESS AFTER EXTRACTION—R. BECK.—Paraffin, that melts from 99° to 109° F., added to 4 per cent. white vaselin, by melting, injected beneath the mucous membrane lining the alveolar sockets of teeth immediately after their extraction and stoppage of hemorrhage, will prevent the entire absorption of the bone. This is of great importance, especially in the preservation of the cuspid eminence, retaining the facial contour, and in cases where all the teeth have been removed and artificial dentures are to be substituted, the cuspid eminence will form the foundation for the setting up of artificial teeth.—*Digest.*

PARAFFIN FOR FILLING ROOT CANALS—R. BECK.—A mixture of paraffin 96 per cent., white vaselin 4 per cent., is placed in a porcelain dish and brought to a boiling point, and if it be desired to color the same, alkonet may be added while being boiled. The tooth in which the roots are to be filled, after all the contents have been removed, is placed in an aseptic condition and is thoroughly dried out with hot air.

I have employed two methods for the filling of root canals with paraffin: 1. By means of injection with Anal's metal syringe, or Luer's glass syringe, which have been previously sterilized and kept warm, filled with liquid paraffin, inverted and all air expelled by pressing upon the piston. The needle is screwed firmly to the attachment, and pressed again; the piston is to force the paraffin into the needle point. The charged syringe is placed in hot water until ready for use, in order to keep the paraffin in a liquid state. The root being ready for filling, the solution, which should be at a temperature of about 160 F., is injected into the tooth. It will readily flow to the desired points, where it shortly after becomes cooled and hard and remains so. In filling roots of the upper denture, the patient is placed in a reclining position or with head hanging. A heavy tin foil or a lead disc with a central perforation is placed over the orifice of the tooth, thus preventing the material from escaping. A straight point with the syringe is used. While filling the lower teeth the patient sits upright and a curved point is required.—*Digest.*

To Reduce Congestion of the Pulp.—Dr. Huey applies a dressing composed of carbolic acid and morphine to the pulp, leaving it several days. The pulp will then readily absorb arsenic or other drug.

Opening of Roots—D. Genese.—I would never open a root for a patient suffering from constipation without first removing the ailment, as it may be termed, and administering in one-grain doses, three times a day for three or four days, sulphite of calcium to eliminate the stomatitis consequent on this condition, and which may lead to veritable poison.

To Prevent Rubber Warping on Aluminum Plates—R. C. Brophy.—When the base-plate is made and spurred, if instead of using the ordinary vulcanite and placing it in contact with the metal, you will put on a thickness of what we call weighted rubber, you will find it will persist in hugging and will not warp away, as the pure or straight vulcanite does.—*Extract Era.*

How to Apply Arsenic for Devitalization—E. T. Darby.—Where I find a congested pulp and intend to apply arsenic, I put a sedative dressing of carbolic acid and morphine on the pulp and cover it over without pressure, and then drill into the occlusal or buccal surface and place an application of arsenic in the pit. The morphine paste reduces the congestion, while the arsenic devitalizes by way of the fibrillæ, and usually without pain.—*Extract Inter.*

For Painless Pulp Extirpation, Dr. Darby uses cocaine crystals moistened with five per cent. formalin solution.

Root Filling—Jos. Head.—In the case of neurotic patients there is a tendency to pericementitis that follows the root-filling. I have found that when this is to be feared it is wise, instead of filling immediately, to defer the filling of the canal to the second visit, and after the pulp has been removed to place cotton, well soaked in carbolic acid, in the canal, and while the stump of pulp is under the influence of cocaine drive the cotton with the carbolic acid directly onto the stump and sear it. After this is done the patient can go away, and at his next visit it will be found that the canal is quite insensitive at the apex. Then, to avoid any putrescence, I fill the apical portion of the canal with mummifying paste for a distance of one-eighth inch, then complete in the ordinary way. With these cases I have had excellent results.—*Extract International.*

To Facilitate Placing of Rubber Dam on Badly Decayed Teeth—O. E. Inglis.—Prepare the cavity with retaining grooves to the cervical margin, fill the cavity with cotton well packed to place, leaving space for the restoration of approximal contours with a quick-setting amalgam, solidly packed over the cotton dressing. After the amalgam has hardened sufficiently, cut through to and remove the cotton. This will give free and direct access to the pulp-chamber and permit easy medication, and will restore the tooth so that the rubber dam may be easily applied. This sort of treatment is also useful to prepare a tooth for an application of nerve paste or cocaine by the pressure method.—*Stomatologist.*

Treatment and Filling of Root—C. E. Klotz.—The first thing to do is to open up the pulp-chamber and locate the opening into the root canals with an explorer, then enlarge with a Morey drill. Explore the length, size, and curvature of the canal with a fine, smooth broach, then enlarge, if necessary;

use root canal drills as little as possible. Root canal cleansers will enlarge a canal without the danger of cutting a shoulder. If any odor still exists wipe out with H_2O_2 and bichlorid 1 to 500, and dress with eucalyptus; after three or four days dry the canal and fill with asbestos fiber and chloro-percha.—*Cosmos.*

"CAROID SOLVENT."—In place of papain as a pulp digester, Dr. Greenbaum uses "caroid solvent," and says that the good results obtained from the use of caroid solvent, the ease with which it can be applied, the penetrating power of this digestive upon all organic tissues present in the root canal and dentin, giving to the latter a whitened appearance as though it had been bleached, demonstrate the usefulness of this method of treating root canals.—*Extract Cosmos.*

TO INTRODUCE VARNISHES AND CHLORO-PERCHA INTO A CAVITY WITHOUT TOUCHING THE BORDERS—S. J. SPENCE.—Use a small probe with a fan shaped bulb on the end. This will take up and hold the liquid without allowing it to run down the shank and will readily part with it when brought into contact with the tooth substance.—*Register.*

METHOD OF SOLDERING IN A DRY INVESTMENT.—DR. MYERS.—The tooth is ground to fit, then backed and prepared for soldering. The borax is then applied to the backing and it is allowed to dry, and the tooth is then buried up to the edge of the backing in the ashes of anthracite coal and soldered.

TO FIX POINTS IN SOCKET HANDLES.—To fix an excavator, plugger, or other point in a socket handle do not wrench it into place with pliers, there to rust beyond the possibility of removal without the application of heat and much force, permanently and often seriously marring the two pieces. But rather merely heat to the wax-melting degree, the threaded end of the point, touch to a bit of the hard wax used in bridge-work, and after similarly heating the threaded end of the handle, insert the point in the socket, and with only the thumb and finger twist to place. This fixes the point in the handle, keeps it there, prevents ingress of water in cleansing and therefore rust. To disengage the point for repair, replacement or substitution, it is only necessary to apply heat at the threaded parts and unscrew the point, which is usually done with the thumb and fingers, in rare instances a pair of pliers may be necessary.—*Office and Laboratory.*

TREATMENT OF NECROSED BONE—DR. J. H. WOOLEY, after syringing the diseased parts with borated cassia water, uses a 50 per cent. solution of sulpho-phenic acid on cotton, wound on a broach, applying liberally to the necrosed area.

TO REMOVE DEPRESSIONS ON THE SURFACE OF A RUBBER PLATE.—Sandpaper used on the rubber end of a lead pencil will reach and dress effectively depressions on the surface of a rubber plate.—*Hints.*

EXOSTOSED TEETH GIVE TROUBLE—H. C. HOPKINS.—Recently I extracted two exostosed teeth for a lady who had spent hundreds of dollars seeking relief. She had been a constant sufferer for thirty-five years. Upon the removal of these teeth she was entirely relieved of all pain, and is now in the full enjoyment of life.—*Dental World.*

A HANDY WEIGHT FOR THE RUBBER DAM.—If the rubber dam folds up in the way of the operator seize it with the clamp forceps, twist the forceps several times and let it hang as a weight This is the most convenient thing at hand because it has been used only the moment before in applying the clamp, and, in the absence of a regular weight is quite effective in keeping the rubber out of the way. The clamp forceps should not be allowed to rest against the chin as this is very annoying to the patient.—*Review.*

SHARPENING LANCETS, EXCAVATORS, ETC.—F. J. PATTERSON.—Disks made from emery paper Nos. 00 and ½, an inch and a half in diameter, are placed in alternate layers to about a quarter of an inch in thickness upon a disk made of tin slightly smaller in diameter than the emery disks and mounted on a screw mandril. The tin disk serves to hold the paper disks flat while sharpening the instrument. Place the mandril in handpiece and hold it with the left hand, leaving the right hand free to apply instrument to be sharpened in contact with the coarser grit to trim instrument to desired shape. Tear off this disk and finish the sharpening upon the finer grit. A keen, even edge can be given to the instrument in a very short time in this way.—*Review.*

To Prevent Destroying Translucency of Teeth by Backing—H. J. Goslee.—It does not matter how carefully we select the shade of a tooth in matching it, or how carefully we grind it to conform with the shape of the corresponding and adjacent teeth, the minute we place a backing on it we entirely destroy its translucency, and have a different effect than is desired; and the only way we can overcome this and produce the desired effect is by placing something of a mineral nature, in the shape of paint, between the porcelain itself and the metal backing.—*Extract Review.*

Silver and Vulcanite—H. Prinz.—The percentage of silver present as an alloy in gold plate or any other plate material is *the* agent which forms a close union between the plate and the vulcanite. Dr. Yung, of Heidelberg, has shown by actual experiment that it will require from 150 to 200 pounds weight to detach rubber from gold 16 to 20 carats fine; while on the other hand pure gold, aluminum, platinum, etc., form practically no direct union with the vulcanite. It is, therefore, of the greatest importance to alloy those metals upon which we wish to vulcanize with at least about 20 per cent. of silver. Aluminum should be alloyed in the same way, and I have no doubt the rubber will adhere to it perfectly.—*Era.*

Filling of Incompletely Developed Root Canals.—F. Frauner.—The essayist discusses the use of paraffin as a substance for the filling of root canals, and states that while it has already been used for this purpose, it has never before been employed specially for the filling of incompletely developed roots. He calls attention in a general way to the necessity of avoiding the passage of the filling material through the apical foramen, and says that the contact of paraffin with the soft tissues does not produce any reaction, and for this reason it has been used in surgery for many years. He then takes up the properties which a root canal filling should possess, and says that paraffin embraces the most important ones, *i. e.*, impermeability, unabsorbability, the possibility of its being carried to the end of the root, slowness in setting, easy manipulation, the possibility of its being removed after its introduction into the canal, etc.

A description is given of cases in which paraffin was used to advantage in the filling of the root canals of teeth in children. The paper concludes with the author's method of manipulating the paraffin, which consists in filling a metal syringe with the softened material, which is then allowed to harden and is put aside until wanted for use, when by slightly heating the syringe the paraffin melts, and can be easily introduced in the canals of the upper teeth. For the lower teeth, the paraffin can be melted upon a spatula, carried to the canal, and worked in by means of a broach.—*Zahnarztliche Monatsschrift.—Cosmos.*

USE OF CHLOROTONE.—DR. OAKMAN.—I use a saturated solution of chlorctone, I make a hot water solution in a test tube, you can get about a three and a half per cent. solution in this way. I make it just as hot as the patient can stand it, usually warming the patient up to it by commencing with slightly hot and increasing the temperature gradually. I then saturate a pledget of cotton and press it into the pocket, and by this means I get a very desirable anesthetic effect. I work on two or three teeth at a time in this way. I apply to both labial and lingual of the teeth. Before I dismiss the patient I take a certain number of threads of cotton and saturate in the hot chlorotone solution, and as I place them into place, count them and request the patient to leave them in until the next morning, when they can count them on taking out. A piece of cotton, if left, may act as an irritant, it gets no chance to do so by this method.—*Register.*

TO ENLARGE OR LENGTHEN BROKEN OFF PINS.—R. B. TULLER.—Have you ever been puzzled to know how to enlarge a pin, or lengthen a broken off pin in a Richmond crown, or in a piece of bridge-work? Take a piece of platinoid or German silver wire and shape with a file such a pin as is wanted. Now around this wrap a narrow strip of thin platinum spirally so that edges meet and so it takes the form of the pin. Now remove and after clipping to length desired slip the large end over the portion of pin remaining in porcelain tooth, when it will cling readily unless, of course, the pin has been broken off too short, which is rarely the case. Now invest and fill up whatever space there may be in the platinum spiral with solder as low as 16k if desired, when of course you have a solid pin securely soldered in place as originally. Then, if need be, a little enlarging of the hole in root or a little dressing down of pin will make it go to place all O. K.—provided, of course, that the broken off part of pin in root has been removed, which is often a greater piece of engineering than replacing pin in crown.—*American Journal.*

Mixing of Cement.—D. W. Barker.—That first portion of powder should be stirred into all the liquid until the whole of the liquid has some of the powder in it and it is a homogeneous mass; then another portion of the powder is added, and that stirred until the whole mass is homogeneous. It takes quite a little stirring, adding a portion of the powder each time, seeing that it is mixed throughout the entire lot of the liquid. There is a little knack in it. You will not be able to do it the first time probably. It should be carried quickly to the mouth or the tooth causes it to crystallize quickly. By the time you turn around and get another instrument it sets.—*Items.*

Lactic Acid a Deposit Remover.—Dr. Straith.—I use lactic acid to remove all deposits on the roots of teeth, it seems to dissolve them. If you are not able to remove the deposits mechanically, lactic acid will do it.—*Register.*

Apply Chlorotone Before Removing Tartar.—S. M. White.—I have something which I would like to have you try when you get a case which is real mean to handle. Dry the gums and apply cocaine or chlorotone before you commence to remove the tartar, after doing this thoroughly, then apply carefully a twenty-five per cent. solution of sulphuric acid; then fill the cavity with quinine and seal it over with chlorotone, and send your patient home to rest and see him again in about a month. I have had very good results from such treatment.—*Register.*

To Prevent Destruction of Pulp from Cement Filling.—A. A. Wilcox.—I believe that the destruction of the pulp under cement filling is due to the effect of phosphoric acid. I want to give you directions for using cement in close proximity to the pulp without any danger of the pulp ever being affected. When the filling is first inserted there is a little phosphoric acid on the surface of the plug, which penetrates the dentine and which gradually destroys the pulp. If you will take the precaution to wipe the bottom of your cavities with oil of cloves, the phosphoric acid will not pass through it; it will not unite with it at all.

If you do not have a good undercut, use considerable care to remove the oil of cloves around the margin of the cavity; but at all events you had better make a little undercut.—*Dominion.*

To Hasten Setting of Cement.—A. A. Wilcox.—To hasten the setting of cement, add a little water to the phosphoric acid before incorporating the powder.

A Point About Cement Fillings.—Cement fillings should be absolutely dry before being allowed to come in contact with the fluids of the mouth, as otherwise they will absorb moisture, will not become thoroughly hardened, and will act as a constant menace to the life of the tooth instead of as a barrier against the ingress and development of micro-organisms. This is a point that is very much neglected, a large majority of operators allowing the saliva to bathe the filling immediately after its insertion has been completed. It cannot be definitely stated how long it takes for a cement filling to become thoroughly hardened, this being governed by the qualities possessed by the particular material used, but what can be safely asserted is that it takes at least from two to three hours. As it would be inconsistent with the time at the disposal of both operator and patient, and almost a cruel procedure to demand that the rubber dam or the napkins used to exclude the oral fluids be left in the mouth until the filling is perfectly dry, operators must have recourse to other means if it be desired for the cement filling to accomplish its full therapeutic purpose. Many methods have been devised to compass this end, but the simplest one to the writer's knowledge consists in protecting the surface of the filling with a coating of collodion, which after evaporation leaves a film that excludes salivary secretion, and does not deteriorate until long after the filling has become thoroughly hardened. It is unquestionable that some of the failures with cements are due, among other causes, to the non-observance of this precaution, and operators should try the above suggestion, when they will probably become thoroughly convinced of its usefulness and importance.—*Cosmos.*

Devitalizing Teeth.—F. H. Metcalf.—The secret of avoiding pain is to avoid pressure. This is best accomplished by applying the arsenic moistened with carbolic acid direct to the exposure, then apply a pellet of cotton and seal cavity with thin cement.—*Gazette.*

Crowns for the Anterior Teeth.—F. H. Metcalf.—I have never seen anything that would compare favorably with the Logan in looks, and its durability is wonderful when perfect contact with the root is obtained. For both strength and durability the Richmond crown still leads, and with the careful operator I believe it to be preferable in most cases. I have never seen a satisfactory crown with platinum band and the addition of porcelain. Receding of the gum is bound to occur, and the platinum gives a blue line at the gum margin. I have seen this in many cases that have come under my observation. —*Gazette.*

Treatment of Pericementitis.—A. W. Harlan.—In a pericementitis, which is an ordinary disease, if induced by traumatism, rest is absolutely necessary for quick recovery. If by poison (ptomains), the removal of the producer of the poison by the use of a knife, by gentle heat (up to 140° F.), and perhaps by counter-irritation. When a counter-irritation is practiced it were useless to do it half-heartedly; among others I use for counter-irritation iodin paint, which is composed of:

Resublimed iodin, ½ ounce;
Potassium iodid, ½ ounce;
Fleming's tincture of aconite root, ¼ ounce;
Alcohol, 1 ounce;
Chloroform, 1 ounce. M.

To produce perfect counter-irritation dry the gum thoroughly and paint it three or four coats. This paint will act rapidly and certainly. A few doses of gelsemium sulfate—1-60 of a grain every half hour—will so quickly relieve pain that the patient forgets in a few hours that he ever had it. The combined action of the local and the internal treatment is resolvant, alterative, and sedative.—*Cosmos.*

Treatment of Sluggish Abscesses.—A. W. Harlan.—All efforts to cure by the aid of drugs the sluggish abscesses around the roots of teeth, alveolar or peridental, should be based upon the action, first, of agents known to be destroyers of tissue in a strength not so great that needless destruction of sound tissue should take place, but in such a manner that all dead and dying tissue will be destroyed, including the pus-producing organisms; second, the use of such drugs or remedies as will cleanse and disinfect the pouch or fistula until healing takes place. The true basis of practice is to use acids or corrosive agents first, and neutral or alkaline agents second, for disinfection.—*Cosmos.*

Irritation and Bleeding of the Gums Incident to the Scaling and Polishing of Teeth.—The irritation and bleeding of the gums incident to the scaling and polishing of teeth can be advantageously treated with glycerite of tannin, which should be brushed over the gums and around the necks of the teeth by means of cotton wound around an orange-wood stick.—*Cosmos.*

EDITORIAL

THE RESULTS OF COMPULSORY DENTAL AND ORAL PROPHYLAXIS.

Dental prophylaxis is an important subject and means to bring about better care of the teeth and mouth have been advanced and discussed in nearly every dental journal and dental society in the land. Societies in some sections of the United States have succeeded in obtaining better instruction on this subject in their public schools. In some portions of Europe examination of the teeth of school children is made compulsory, and the reports of such examinations clearly show the need of better attention to the care of the teeth of children. It is reported that the Central Dental Association of New Jersey is now attempting to obtain legislation in that state making compulsory on the part of parents the care of the teeth of their children.

All of these various advances are commendable and mean more to coming generations than people in general are aware. In fact, more than many in the dental profession foresee. Could compulsory dental prophylaxis be brought about what would be the result? Let us turn our attention to a class of persons who are already compelled to observe dental and oral prophylaxis in its broadest meaning, and see what it has accomplished.

Dr. F. W. Knowlton, dental examiner for the Diamond Match Co., a few weeks ago invited the editor of The Dental Summary to visit the large match works located in Barberton, Ohio, and see what is being done in the way of dental prophylaxis among its employes.

The four factories in the United States that belong to this company contain more than two thousand employes, men, women, boys and girls. It is the duty of the examiner to make every three months a rigid examination of the condition of the teeth and mouth of every employe. This is done systematically and tabulated records made. If any teeth need filling or other operations are to be performed, the employe is so notified and must return with a statement from the dentist certifying that the operations have been properly accomplished and that the teeth are all in good condition. This is exacted of employes under penalty of discharge.

The general condition of the soft tissues of the mouth, especially the gums, is also noted and the employe instructed accordingly.

Especial attention is given to keeping the teeth free from calcareous deposits, and the gums in a normal condition. Every employe is obliged to brush his teeth and gums at least once a day and use such mouth washes and dentifrices as are prescribed by the examiner. At his next visit the examiner compares the work done, with his last instructions as entered in his record book. If any filling or other operation is found faulty, the patient is returned to the dentist who performed it, with instructions to have it made satisfactory.

By this strict supervision over the oral cavity, phosphor-necrosis, which used to be common among match workers, has been almost entirely stamped out, Dr. Knowlton having only four mild cases at present among the two thousand employes.

Aside from limiting this dread disease, this compulsory prophylaxis has been of great benefit to every employe, and an educator of no small proportions.

Here are more than two thousand persons of a class that under ordinary conditions pay little or no attention to their teeth, with their dental organs scrupulously clean, gums of the normal tint, firm and healthy, and a clean mouth.

I doubt whether there is even one dentist in the United States, or the whole world, having a class of patients with such universally clean and normal appearing teeth and oral tissues as these poor working men, women, boys and girls.

And they soon see the benefits themselves and take pride in their beautifully clean teeth and healthy gums, and the compulsory care of them becomes a pleasure.

Herein lies a thought the dental profession should consider well.

In general practice is enough attention given to the removal of deposits about the teeth, and the healing of abnormal conditions of the gums that present with perhaps the majority of patients? Would not a checking of the abnormal secretions from pathological conditions of the gums by bringing them back to a normal state modify in a degree the ravages of dental caries, have its influence on the starting or progress of pyorrhoea alveolaris, and other abnormal conditions even to the general health of the individual?

Dental prophylaxis rightly observed is a great benefactor and could some compulsory measures be made universal who can estimate the good that would result to the people of our nation?

X-RAY DIAGNOSIS NOT INFALLIBLE.

As a result of a mistaken x-ray diagnosis, Mr. Frank Buettener, aged 61 years, of Cleveland, Ohio, died, October 9th, from the effects of an operation of esophagotomy for the recovery of an artificial denture, supposed to have been swallowed.

Mr. Buettener awakened suddenly about four o'clock in the morning with a choking sensation. He wore both upper and lower plates and the lower was missing. The idea immediately flashed upon his mind that he had swallowed the plate, and hurriedly dressing he rushed to his family physician for aid. The physician thought he could feel the plate in the esophagus and worked for two hours trying to break and remove it.

The choking patient was then taken to St. Alexis' Hospital and an x-ray skiagraph made to locate the teeth. The x-ray picture showed a shadow apparently in the esophagus, and this was diagnosed as the missing denture.

The physicians began the operation at noon and as it progressed were much surprised to find no trace of the teeth. The operators had worked two hours on the patient and the operation was nearly finished when a nurse rushed into the operating room with the plate Buettener was supposed to have swallowed. It had been found between the mattress and side of the bed in which Buettener slept. The operation was at once stopped and the wounds dressed, but the patient died within a few hours thereafter. The x-ray shadow was said to have been caused by a thickening of membrane due to a severe attack of laryngitis with which he had been afflicted.

Such mistakes too plainly point out the seriousness of a hasty diagnosis, especially when it involves a life. The old saying, "Be sure you're right, then go ahead," might profitably be changed, for physicians and dentists, to read: "Be sure your diagnosis is correct before you operate."

SOCIETY

OHIO STATE DENTAL SOCIETY MEETING.

The next meeting of this society, to be held in Columbus, December 2, 3, 4, 1902, promises to be an exceptionally good one, as an excellent program is being arranged. Aside from well known local talent, several specialists from other states will be in attendance to give their methods to the profession of Ohio. Porcelain work will be one of the important subjects to receive consideration, both in the meetings and in the exhibits. It is said the dental depot exhibits will be the finest ever held here. All the new and novel instruments, appliances, furniture, etc., will be displayed. A special exhibit will be made of the new electrical appliances and everything that pertains to the working of porcelain. Special clinics on the use of these appliances and materials will be given by the dealers. Be sure and come to the meeting.

[We expected to be able to publish the program in this issue, but up to the time of going to press it was not in shape for publication.—Ed.]

BOARD OF DENTAL EXAMINERS OF PENNSYLVANIA.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, December 16-19, 1902.

Address Hon. James W. Latta, secretary Dental Council, Harrisburg, Penn., for application papers or any other information.

G. W. Klump, *Sec'y.*

OHIO STATE BOARD OF DENTAL EXAMINERS.

The Ohio State Board of Dental Examiners will meet at the Neil House, Columbus, O., November 25, 26 and 27, to examine applicants for registration. Applications should be filed November 15.

For further particulars and application blanks address the Secretary, 112 East Broad Street, Columbus, O.

H. C. Brown, *Sec'y.*

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. D. E. Sorg, former Pittsburg dentist, died September 23rd.

Dr. D. F. Cotterman, Marseilles, Ill., died September 12th.

Dr. William Jackson, Albany, Ky., died October 2nd from typhoid fever.

Dr. B. P. Eldred, Lanesboro, Minn., died September 28th from Bright's disease.

Dr. D. G. Colwell, Ithaca, Mich., married October 9th to Miss Harriet Barstow.

C. Stoddard Smith, Springfield, Mo., died suddenly at Argyle September 11th.

Dr. R. E. Wyatt, Millcreek Valley, O., died October 7th from stroke of paralysis.

The Public's Definition of a dentist is a man who puts a dent in your pocketbook.

Loss by Fire.—Dr. J. N. Campbell, Chateaugay, N. Y., was burned out October 2nd.

Dr. I. B. Cochrane, Richmond, Ind., was married September 12th to Miss Effa O'Neal.

Dr. W. L. Hurd was married October 7th to Miss Jennie Hamilton at Eaton Rapids, Mich.

Dr. J. More Fox, of San Francisco, married Miss Alice M. Kellar, an actress, September 30th.

Dr. T. A. Pattison, St. Cloud, Minn., died October 8th from an operation for appendicitis.

Dr. J. P. Garvin, prominent dentist of Fon du Lac, Wis., died of consumption September 26th.

Dr. A. L. Fountain, New Albany, Ind., was married September 19th to Miss Emma Jamison.

Dr. E. W. White, prominent dentist of Park City, Utah, died of typhoid fever September 14th.

Dr. S. A. Wilson, Chicago dentist, has been nominated for state senator on the Prohibition ticket.

Dr. H. G. Butcher, Urbana, O., was married September 25th to Miss Grace Hale, of West Liberty.

Dr. J. A. Stainmeyer, of Westmoreland, Kan., was married September 10th to Miss Carrie Weeks.

Dr. Edward B. Caldwell, of Shepard, Mich., was married September 10th to Miss Mary Sheffold, at Ann Arbor, Mich.

Loss by Fire.—Dr. A. H. Tunks, dentist in Hopkinsville, Ky., was burned out September 23rd. Loss $600. Insured for $400.

Women Dentists.—It is estimated that between four and five hundred women dentists are practicing dentistry in the United States.

Dentist Robbed.—Dr. F. E. Pilcher, Sparta, Wis., was "held up" by robbers and relieved of a gold watch and $50 in money October 1st.

After Physicians Practicing Dentistry.—The Dental Board of Quebec are after physicians who have been practicing dentistry illegally in the province.

SOUTHWESTERN MICHIGAN DENTAL SOCIETY OFFICERS ELECTED: C. H. Worboys, president; A. L. LeGro, vice-president; C. W. Johnson, secretary.

DR. F. AGUILLAR, the most prominent dentist of Cadiz, Spain, has been spending some time in this country investigating American colleges and methods.

PROF. WILLIAM HUMPHREYS, of Princeton, to relieve a severe toothache, took an overdose of chloral hydrate and it was with the greatest efforts that his life was saved.

FELL TO HIS DEATH.—Dr. Chas. Warner, Deadwood, Col., accidentally fell into a 95 foot shaft at the Lappin mine at Deadwood and was instantly killed September 5th.

DEATH FROM GAS ADMINISTRATION.—Miss Julia Fisher died in a dental chair in Chicago September 14th while under the influence of gas administered for tooth extraction.

LOSS BY THEFT.—While Dr. S. M. Riley was temporarily absent from his office in Hannibal, Mo., September 30th, some thief entered the office and stole gold and plate worth $25.

DEATH FROM CHLOROFORM.—While having thirteen teeth extracted Mrs. James Vincent, Butte, Montana, succumbed from the effects of the chloroform administered as an anesthetic.

HARDLY.—"The accident cost you your teeth? Well, I'd sue the railroad company for damages."

"And let everybody know I was wearing false teeth? Well, I guess not!"

DR. C. R. TURNER, Raleigh, N. C., has been given the chair of Prosthetic Dentistry and Metallurgy, in the Dental Department, University of Pennsylvania, made vacant by the death of Dr. C. J. Essig.

CLARK FOUNTAIN SPITTOON COMPANY BURNED OUT.—A. C. Clark & Co., the well-known spittoon manufacturers of Chicago, were burned out October 3rd. Loss $40,000. Mr. Clark saved the lives of two of his employes.

NEAR DEATH FROM HEMORRHAGE FOLLOWING TOOTH EXTRACTION.—Miss Ida Stephens had twelve teeth extracted in Kenosha, Wis., and the hemorrhage following was so severe it was with the greatest difficulty that her life was saved.

DEATH FROM CHLOROFORM.—Mrs. Charles Nelms, Rock Island, Ill., died in a dentist's chair in Quincy, Ill., September 13th, from the effects of chloroform being administered for tooth extraction. Heart failure was the immediate cause of death.

GUEST OF HONOR.—At a meeting of the Western Indiana Dental Society, September 13th, held in Terre Haute, Dr. George E. Hunt, of Indianapolis, was the guest of honor and delivered the principal address, his subject being "A Plea for Better Things."

DENTIST SUICIDES.—George S. Seymour, one of the oldest and most prominent dentists in Louisville, was found dead from asphyxiation in the bathroom at his home. The gas in the apartment had been turned on and the coroner after viewing the body rendered a verdict of suicide.

MINNESOTA STATE DENTAL SOCIETY elected officers as follows: President, Dr. F. R. Holden, Duluth; vice-president, Dr. A. M. Davis; secretary, Dr. George F. Todd; treasurer, Dr. H. M. Reid, Minneapolis; chairman executive committee, Dr. J. M. Wall, St. Paul; master of clinics, Dr. J. O. Wells.

CUT HIS TEETH FOR HIM.—Josh Hayrix—"They be sum all-fired slick dentist fellers deown tew th' city."

Si Meddergrass—"Did yew hev anything done in that line while yew wuz tew teown?"

Josh Hayrix—"Wall, I kinder reckon! I hed my eye-teeth cut, b'gosh!"

DIDN'T LIKE THE TEETH BUT SHE PAID FOR THEM.—Because she was compelled to pay for false teeth which she said fell out of her mouth, Mrs. Jane O'Keefe, Chicago, brought suit against Dr. J. D. Lunn for $20. Justice Malhoit heard the case and as it was shown that the teeth were purchased over four years ago the court dismissed the case at Mrs. O'Keefe's costs.

HER ENGAGEMENT.—Kitty—"Constance is wearing a diamond ring on her engagement finger. I'll bet she's only trying to fool folks."

Maude—"Oh, it's an engagement, all right; she told me about it. The engagement is with her dentist, you know, and she put the ring on for fear she might forget."—*Boston Transcript.*

DENTIST ARRESTED FOR COUNTERFEITING.—Dr. G. F. Edes, Council Bluffs, Ia., was arrested September 28th for counterfeiting. Edes was arrested at his residence, and when the counterfeiting plant was discovered in the cellar of his residence he made a full confession. There were several molds for making $5 gold pieces, and full outfit for plating the coins. His wife claims he made her go to the stores and dispose of the spurious coin.

NORTHERN INDIANA DENTAL SOCIETY.—The following officers were elected: Dr. M. A. Payne, Wabash, president; Dr. S. B. Hartman, Ft. Wayne, vice-president; Dr. J. A. Stoeckley, South Bend, secretary and treasurer; Dr. J. F. Werner, Elkhart, supervisor of clinics. The executive committee consists of Dr. A. L. Stephenson, Warsaw; Dr. F. H. Irwin, Mishawaka; Dr. J. S. McCurdy, Fort Wayne; Dr. Clem Shidler, South Bend; Dr. C. J. Kuhn, Ligonier. The next meeting will be held at Wabash.

GAS-PIPE PINCERS USED AS FORCEPS CAUSE BLOOD POISONING.—The pulling of a tooth with a pair of gas-pipe pincers was the cause of the death of Michael Bokula, who arrived in McKeesport September 6th from Russia. While on board ship he suffered from toothache and one of the deckhands pulled the offending tooth with a pair of pincers. The man's mouth was badly lacerated, and when he arrived in McKeesport his jaw was swollen to twice its natural size. Two hours afterward he died from blood poisoning.

Nurses Must Have Good Teeth.—Nurses must have good teeth, is the decision of the board of managers of the Huron Street Hospital Training School for Nurses, Cleveland, O., so the circular of instructions to applicants to the school contains this statement:

"If the teeth are out of order in any way, they must receive attention before coming for the probationary months."

"Nobody likes to look at a mouthful of bad teeth, and the sick man or woman certainly dislikes it more than anybody else," said a member of the board.

Central Dental Association's Aseptic Day and Dinner.—Instead of the regular fall meeting of the C. D. A. of N. J., the members accepted an invitation from Messrs. Johnson & Johnson, New Brunswick, N. J., to visit their aseptic laboratories, which was done on the afternoon of September 29th. In the evening an aseptic dinner was served, the menu being printed on the well-known J. & J. absorbent cotton. After the dinner F. B. Kilmer, Ph. C., gave a talk on "Germs," and Dr. A. Irwin, of Camden, read a paper on "Asepsis as Applied to Dentistry." The affair was unique in every sense of the word.

Degrees in Dentistry.—A special convocation was held at Trinity University to confer degrees in dentistry, states the *Washington Star*. The recipients were: Martin Sherwood, of Oxford, England, and P. A. Cohen and F. G. Butler-Wood, of Australia, all of whom graduated with honors. Prof. A. H. Young presented the candidates for the degree of Doctor of Dental Surgery. Dr. R. J. Reade presented Drs. Wood and Cohen for honor certificates. After a few words from Dr. Caesar and Mr. James Hedley, the guests were invited to the provost's room, where refreshments were served and a very pleasant half hour spent. Among those present were: Provost Macklem, Prof. Young, Prof. Montgomery, Prof. King, Prof. Mackenzie, Mr. David Kemp, Mr. James Hedley, and Drs. Snelgrove, A. E. Webster, G. S. Caesar, Wilkinson, Reade, Capon, F. J. Adams, A. F. Webster, and Abbott.

TOOTHACHE WAS DIFFERENT.—Dr. Herbert W. Spencer tells the *New York Tribune* the following story of his attempt to corner a Christian Scientist:

"Every time we met this scientist took occasion to scoff at medical science and to dwell upon the wonders which could be performed through faith. 'You are convinced that through faith you can do anything?' I said to him one day.

" 'Yes,' he replied; 'faith will move mountains.'

"A week later he was in my office with a swollen jaw due to a toothache. 'What, you here!' I exclaimed with feigned astonishment.

" 'Oh, doctor,' he said, 'I have suffered agony all through the night. I simply can't stand this pain any longer.'

" 'Have you tried faith?' I said to him. 'You know you told me the other day that faith could move mountains.'

" 'But this is a cavity, doctor; this is a cavity.' "

MAUSOLEUM FOR THE BODY OF DR. T. W. EVANS.—Plans for the mausoleum in Woodland Cemetery for the body of Dr. Thomas W. Evans, the famous dentist, once a Philadelphian, who died in 1897 in Paris, where he had long resided, have been drawn by Wilson Brothers & Co., says the *Philadelphia Ledger*. Dr. Evans' residuary estate was bequeathed to Philadelphia for founding the Evans Dental College.

The mausoleum will be erected on rising ground, selected in accordance with directions of Dr. Evans' will by his executors. In shape it will be a Greek cross, fifty feet high, each arm fifty feet long. The outer walls and dome will be granite. Four granite columns seventeen feet high will support the portico forming the entrance, which will have heavy bronze doors of ornate design.

The interior building, which will be of white marble with mosaic floor and ceiling, will contain twenty crypts located in the arms of the cross. The crypts to contain the remains of Dr. Evans and of his wife are to be selected upon the completion of the mausoleum, which is to be the tomb of the Evans family. It is believed that the structure will be absolutely damp proof, and of such a character as to need little if any repair at any time.

The American Educated Dentist the Best Dentist.—The emperor of Germany, the most far-sighted monarch of the world, has appointed an American dentist to have charge of all dental work in the royal household. The German emperor is not the only European ruler who shows a fondness for American dentists. There is an American dentist attached to the court of Austria-Hungary and the dentist who is on the staff of the sultan of Turkey was educated in America. But not only the kings and princes prefer American dentistry, but the people as well, says Walter Williams in the Columbia *Herald*. There is scarcely a foreign city of any size where there may not be found one or more American dentists. Nor are they quite so exclusive as their brethren upon this side of the herring pond. They advertise. They have signs on their offices and notices in the newspapers stating that they are "Dentists American." Some have a permanent abiding place, but follow the tourists' season from Cairo to Carlsbad, from Rome to Edinburg. Not all are Americans who bear the label. The imitation article simply so advertises while the genuine American-made product commonly adds the name of the school at which he graduated. The English physician is found wherever English is spoken, but the English dentist does not go outside the British Isles. American physicians, so successful at home, are seldom found abroad, but American dentists go everywhere.

Dental Graduates Sued to Stop Their Practice.—Eleven graduates of the German-American Dental College, of which Dr. Fritz Huxman is the owner, are defendant in quo warranto proceedings brought by the State Board of Dental Examiners to compel them to desist from practicing under licenses which are alleged to have been improperly issued.

The petition is supported by an affidavit of James G. Reid, the secretary of the State Board of Dental Examiners. His predecessor in office was Jacob H. Smyser, and it is alleged that while Smyser was in office in 1899 the alleged improper licenses were issued. The affidavit says further that the eleven licenses purport to have been signed by W. C. Joslyn, as president of the board, and Jacob H. Smyser, secretary, and A. C. Barr, as a member of the board. Reid avers that the board had no power to issue licenses upon the diploma of the German-American Dental College; that the college never enjoyed good standing.

The matter was taken before Judge Kavanagh and leave was given State's Attorney Deneen to file further information and summons have been issued against the defendants.

This proceeding on the part of the state board is partly an outgrowth of the mandamus proceedings which were brought last summer by Etienne Stump, a student at the German-American Dental College, to compel the board to issue him a license. Judge Chetlain heard the arguments and testimony and decided in favor of the board, sustaining its refusal to grant a license.

At that time something of this sort was foreshadowed, and the German government, through Consul Worman, produced a number of licenses which had been taken from former students who had been licensed and had gone back to Germany to practice.

[illegible]
College of Dental and Oral Sur[illegible]
302 East 35th Street
New York

THE DENTAL SUMMARY

Vol. XXII *DECEMBER, 1902* *No. 12*

CONTRIBUTIONS.

A NEW METHOD OF RETAINING PARTIAL DENTURES.

BY EVERETT M. COOK, D. D. S., TOLEDO, O.

For many years the dental profession has realized that the old method of retaining partial dentures in position by the use of gold clasps had many very serious disadvantages; the most disastrous being the large number of teeth lost, on account of their use.

Many methods have been advocated to overcome this difficulty; after the crowning of teeth with gold was introduced, it was not an uncommon practice to crown one or more teeth with gold, fitting the bands to these crowned teeth; and this method has advantages over some of the attachments which have been recommended in recent years.

The method I have adopted, which I shall try to make plain to you, is the outcome of my practical experience with many methods advanced which I found inadequate, making it necessary to abandon their use.

What are the requirements of a fixture for this purpose?

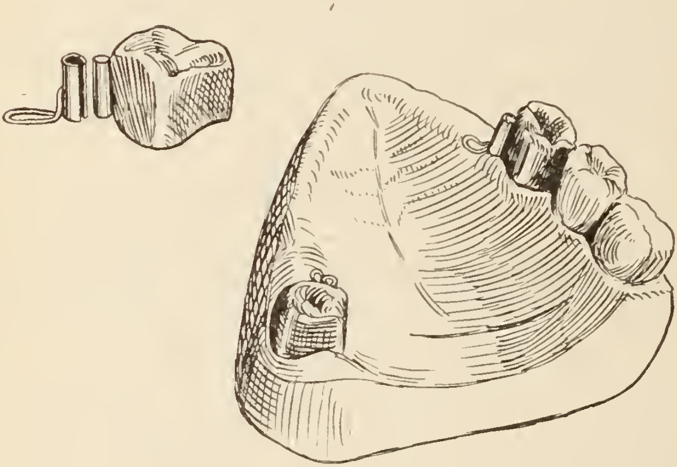
First. That it be so constructed that it does not interfere with the usefulness of the tooth to which it is attached.

Second. That the pressure of the piece be entirely on the alveolar ridge.

Third. That it be easily adjusted to a correct position by the patient.

It does not require much to keep a partial denture in position. If this fixture is properly adjusted it will be of the utmost advantage to the patient; many heretofore hopeless cases having been made useful and comfortable to the wearer.

The illustration shows a sample case, the second molar in position on the right, the first and second on the left; all the anterior teeth having been lost.



A crown of not less than 28 gauge is fitted to the right second and to the left first molar, in the usual manner. A piece of platinum and iridium wire 12 gauge, of sufficient length to extend from the margin of the gum to the occlusal surface of the crown; a piece of 26 gauge clasp metal is formed into a tube that fits the wire closely; sufficient space being left to admit the passing of a piece of 26 gauge metal. Take the pin in a strong pair of pliers or a vise, slit the end through the centre, one-fourth the length of wire, take a piece of 26 gauge clasp metal the length of the pin, cut a notch in it the width of the pin, three-fourths its length, so the notch in the clasp metal will fit in the groove you have cut across the end of the pin. This will give you the clasp metal running along the center of the length of the pin; the two are then soldered together using only sufficient solder to make the union perfect; too much makes it necessary to cut it away before it can be introduced into the tube.

You now have the tube and pin, to which is soldered the wing of clasp metal, complete; the pin should pass through the tube singly, but not tight, the wing extending through the groove in the tube.

Put crowns in position and take an impression, run the model of any investing material, separate carefully that the crowns may not be disturbed.

It will be necessary to use a guide to set the pins, either a Condit or a Griswold will do, fasten a tube on the end of the guide posts that will admit the pin; the use of the wing of clasp metal on the pin is for the purpose of holding the pin away from the crown the thickness of the tube, and also to make it easier to fit the bell of the crown. When the wing on the pin has been fitted to the crown with the guide in position, solder it to place, not so far inside as to make an obstruction to the tongue, or so far out as to interfere with the attachment of the teeth.

Once more place crowns in position, take an impression and make a model upon which build the case.

If a metal plate is to be made, the plate should be in position when the impression is taken; after securing the model, the tube is slipped over the pin now attached to the crown.

If rubber is used, some lugs, of sufficient strength to give a firm attachment in the rubber, should be soldered to the tube, then proceed in the usual way to construct the case.

In fitting the piece to the mouth I have found it advisable to slip it in position, while the cement is still soft under the crowns, letting it remain for a day or two before removing it; however, this is not necessary, as the piece can easily be taken out, after the cement has set.

To be successful the pins must be parallel on the crowns. With a little practice you will find this a simple attachment, easily made.

It is usually better to have an attachment on each side of the mouth, but I have several cases doing good service, when the attachment is to one tooth only.

It is impossible to divide the pressure between the tissues of the mouth and the fixtures, though we are often told that this is accomplished. With this attachment, if the tissue recedes, the fixture permits the piece to follow it, always fitting the mouth. My experience with capped tubes and glove button attachments has not been satisfactory, and I want to repeat that it is because it is impossible to successfully divide the pressure of a denture, under the power applied in mastication, between the fixture and the tissues of the mouth; one or the other *must* bear the strain.

The cases which indicate this method of construction will doubtless be apparent, however, I will mention a few:

A patient presented herself, who had lost all the inferior teeth posterior to the right lateral incisor; from the region of the second bicuspid there was a muscular adhesion which extended to the center of the alveolar ridge, making it impossible to go back of the second bicuspid with a plate; the teeth on the left side all in position I crowned the second bicuspid. swaged a gold plate that extended back as far as the third molar. put attachment on crown, built the piece, the one attachment holding it perfectly.

Another patient had lost the upper left central and lateral incisors, teeth prominent and long. I crowned the first molar on the left, and second bicuspid on right, making a narrow gold plate, the patient having as perfect use of the plate as of a bridge and the appearance is in every way more artistic.

Another class of cases which I have found difficult has been where the molars have been lost on one or both sides below.

A case where first, second and third right inferior molars were lost.

I crowned the second bicuspid, placing two attachments on it; restoring the lost teeth, this piece has been worn a year and a half with great comfort.

A number of my professional friends are using this attachment and the more they see of it the better they think of it. There is no graft of office rights and royalties connected with the use of it. It is free to all. You can make it yourself. If you try this method and get good results for your patients, I shall feel repaid. If any part of my description fails to be perfectly clear, I shall be glad to answer questions at any time.

THE MANAGEMENT OF NON-ERUPTION OF TEETH.

BY STEWART LEROY M'CURDY, M. D PITTSBURG, PA.

Occasionally teeth fail to erupt from some fault of the development of the tooth germ. The process of budding may be in the wrong direction, and the tooth grow upwards or to one side, or some obstruction may interfere with the normal eruption, and instead of the crown pushing its way through the avleolus it grows in an opposite direction.

A most frequent mistake of the general surgeon, who is on the lookout for sarcoma, exostoma, etc., and seldom sees a dentigerous cyst or a tumor due to non-eruption, is to mistake the graver condition for the latter. In this event he makes a complete removal of a maxilla or half of the mandible. After the operation is completed and the tumor is incised, a tooth is found in the center.

Had the true condition been suspected, it could have been removed and such abnormal processes of the bone as were found, chiseled away, the cavity curetted, packed with gauze, and in a few weeks repair would have followed without deformity, or destruction of functional usefulness of the parts.

It is always advisable in bone tumors about the face, to pass an awl or drill through them before operation is begun to exclude a possible dentigerous cyst. Instances of this nature have been observed by the writer and many cases are recorded.

Discharging sinuses from the maxilla or mandible are not always evidence of disease of the antrum or other sinuses or of osteomyelitis or tubercular bone disease. These sinuses are not infrequently the result of a non-erupted tooth.

Indeed all sinuses giving a very chronic history associated with slight or possibly no pain when this sinus is open, extending over a period of years, are more likely to be caused by non-eruption than destructive bone disease.

Case I.—Mrs. A. T., aged 49, had suffered with pain in the right maxilla, just external to the alea, for nineteen years. There never had been any discharge for sixteen years, when a small opening which discharged small quantities of pus and serum was discovered internal to the second incisor.

This had remained open for three years, except occasionally it would close to be followed by pain which continued until spontaneous eruption would relieve the suffering.

An effort to determine whether it was a case of necrosis or non-eruption resulted in a decision in favor of the latter for the following reasons:

1st. In necrosis a greater amount of tissue would have been involved.

2nd. The character of the discharge would have been pus at all times, usually of an offensive odor

3rd. The patient was uncertain as to the eruption or extraction of the second incisor.

4th. In osteomyelitis or tubercular bone disease, a sinus would have formed long before it appeared in this case.

5th. Associated symptoms, as swelling, involvement of secondary structures, as the antrum, would have resulted, none of which were ever present.

6th. The general health of the patient would have been impaired.

An operation under A. C. E. anesthesia consisted in enlarging the opening in the mucous membrane along the line of the alveolus. As the sinus in the bone was slightly back of the alveolus, the bone was cut inward with a chisel. After excavating the opening sufficiently to admit a pair of bone forceps, they were entered and with some difficulty and a tooth was dislodged from its abnormal location. The depth of the cavity thus left after the removal of the tooth was two inches, as determined by actual measurement.

The subsequent history showed that no foreign substance had been allowed to remain, and the sinus was entirely closed in a week and has remained so and free from pain for four years.

Case II.—An interesting case of non-eruption was recently under my care. There was a history of discharging sinuses from the superior maxillary continuously for eight years, beginning when the patient was twelve years old. There was one sinus between the cuspid and bicuspid on the right side, about one-half an inch above the gingival line, from which a small quantity of pus escaped. The principal discharge came from about the molar teeth on both sides. It could be forced out by pressing a finger against the bone back of the molar and drawing the finger forward, when the pus came away in a stream. It was very offensive. There was pretty much the same discharge from the both sides, except the quantity was greater from the left. He had treatment from dentists and doctors during all these years, but no radical operation had been performed until October, 1897, when a surgeon concluding that it was antral disease, enlarged the sinus which terminated between the cuspid and bicuspid on the right side extending the opening upward and backward, and possibly into the right antrum, and the subsequent treatment was for abscess of this cavity.

Nothing was done toward exploring the pus canals about the molar teeth.

Early in January, 1898, another operation similar to the first was performed by the same surgeon. January 19th, 1898, the case presented conditions as above described. It was found that there was considerable of tumefaction extending perpendicularly just internal to the opening made during the operation. Upon further inquiry it was learned that the right cuspid had never erupted. It was concluded that the tooth was the cause of the trouble. Another enlargement was found on the left side of the inferior maxillary, over the roots of the bicuspids. Here the patient claimed the second bicuspid had never erupted; he also claimed that he had not had eight of his permanent teeth. Operation was, of course, advised and January 19th, 1898, before the class at the Dental College, the following conditions were found: A perfectly developed superior cuspid was found, (see Fig. 1) which the former operations had failed to locate. This operation practically cured the trouble at this point, but it did not, however, benefit or diminish the flow of offensive pus from about the molar teeth. A second operation was advised, which was done February 8th. At this time the second molar teeth were extracted, (the third never having erupted) and free openings were made into the pus cavity which were found extending to the temporal fossa of the malar bones. On the left the cavity admitted the writer's little finger for two inches and on the left side, one and one-half inch. These sinuses were thoroughly curetted. No denuded bone was to be found. The sinuses were packed with gauze.

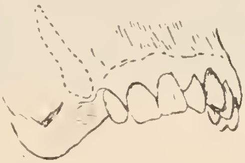


Fig. 1.

The left lower bicuspid was extracted. Its root was found to be ankylosed to the process and a small portion came away with the tooth. The process was further chiseled away, the idea being to remove the non-erupted tooth if possible, or at least remove sufficient of the process to permit eruption. The left lower bicuspid erupted and the enlargement disappeared.

The patient writes that he is entirely well and in perfect health. Fig. 2, taken from a recent photo, shows the sinuses, which, while open, are conical in shape and no food accumulates in them and there is no discharge.

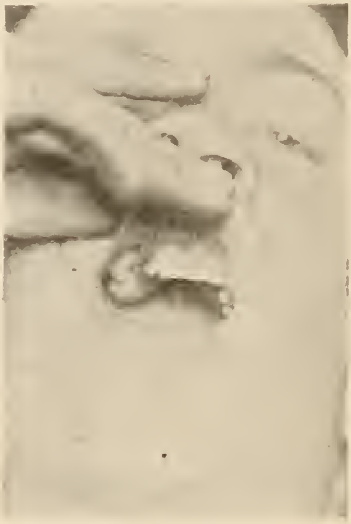


Fig 2

CASE III.—Miss B., aged 20, had been suffering pain in the region of the superior molars, since her twelfth year. She knew that her twelfth year molars had not erupted and was of the opinion that they had something to do with her suffering. This appeared to be quite evident. Operation was advised and under chloroform an incision was made from the first molar backward along the crest of the alveolus. The incision was extended down to the bone. The soft tissues, including periosteum and mucous membrane, was dissected back from the alveolar ridge so as to permit freedom in further operation. The tooth was found partially covered with bone. This was chiseled away and the tooth was pried from its position with a bone elevator. The crown of the tooth pointed directly forward, (see Fig. 3), resting against the first molar. The roots projected slightly downward parallel with the long axis of the alveolus.

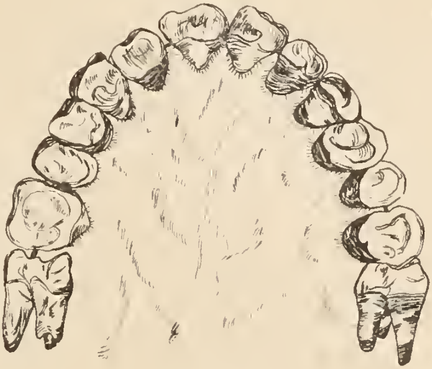


Fig. 3.

The operation on the other side was exactly the same, the tooth was found in the same position. The flaps were adjusted and secured with catgut sutures. Repair followed without complication.

The case is unusual because of the bilateral condition. The teeth on the sides being in the same position.

TIN FILLINGS WITHOUT DISCOLORATION.

BY H. L. AMBLER, M. D., D. D. S., CLEVELAND, OHIO.

I have recently seen two cases where tin fillings in the mouth did not discolor, and yet they saved the teeth perfectly. The first was that of a lady eighty-three years old, and the fillings were made eight and eleven years ago. I have been operating for her about thirty years and have never seen any *salivary calculus* on any of her teeth, and the same can be said of one of her children. The second was that of a gentleman thirty-four years old, who takes very good care of his teeth and occasionally has a very small amount of salivary calculus on a few of his teeth; the fillings were made four and seven years ago.

The fillings in both cases were buccal and occlusal.

MISTAKEN DIAGNOSIS BY PHYSICIANS.

BY DR. A. O. WRIGHT, STOCKTON, CAL.

Mrs. ———, age 48 years, came to me in October, 1902, having been treated since June by a specialist for abscess of the right ear, and without a cure. On examination of the teeth I found a dying pulp in the upper right second bicuspid. I treated the tooth, filled root canals and pulp chamber and dismissed patient. Two weeks later patient appeared, tooth comfortable, and ear trouble entirely gone.

Mrs. ———, age 40 years, who had treated with a specialist and later with two physicians for eye trouble of some months' standing, with but slight relief, came one day to my office. Upon examination I found an upper right central abscessed root canal containing cotton fillings, and a lateral that was devitalized.

The teeth were treated, roots subsequently filled, tissues became normal and eye trouble disappeared.

I would suggest in connection herewith, that physicians might attend some of our dental society meetings with profit.

A VERY USEFUL INSTRUMENT.

BY W. H. ALBRIGHT, D. D. S., BELLEVUE, O.

A pair of artery forceps for removing loose roots, spicula of bone, etc., will be found a very useful instrument. I know of no dental instrument more convenient for this purpose. You can get the forceps at any surgical supply house at forty to fifty cents per pair. There are many varieties, but a strong pair with straight pointed beaks suits me best.

THE TREATMENT OF EXTENSIVE CASES OF CARIES UPON THE DISTO-OCCLUSAL SURFACE OF THE SECOND LOWER BICUSPID.

BY E. BALLARD LODGE, D. D. S., CLEVELAND, OHIO.

To make a restorative operation upon the case in hand an appreciation of the principles involved, the difficulties to be overcome and the ends to be attained may well be considered of vital importance. Recognizing these and aiming to fulfill their requirements portends success, while neglect to do so, invites ultimate if not immediate failure.

A specific case is chosen because it seemed to the writer to be conducive to clearness. Much that may be said will apply, of course, to the treatment of many other cases of proximal decay. Having removed any calcific deposits with appropriate sealers and being certain that no debris from food exists between the teeth or that any cutting edges of cavity margins remain to injure the rubber dam, apply this latter to the tooth under consideration, and to the adjacent first molar and first bicuspid. Ligatures are used only in rare instances as they are in the great majority of cases *utterly* unnecessary to say nothing about the extra time required for their fixing and of the pain to the patient. At this juncture dry and cleanse the teeth with a bath of sulphuric ether on pledgets of absorbent cotton followed by warm air.

With suitable enamel chisels cut down freely the frail enamel walls, both buccally and lingualy, not forgetting what Dr. Black has said, namely: "That the margins of all cavities should be laid down upon areas of tooth structure which are relatively immune to the attacks of bacteria which cause dental caries in order to prevent a recurrence of disease." In other words the principle of "extension for prevention" should not be overlooked.

In so far as it may be expedient, the writer uses Dr. Gillett's spoon excavators to remove debris and residuum—after which suitable burs are employed first in the direct hand piece to cut forward upon the occlusal surface of the tooth and later with the right angle to remove any further decay.

This accomplished, make an angle at the gingivo-lingual and at the gingevo-buccal portions of the cavity with an inverted cone bur of small size in the right angle hand piece. The floor of this cavity should remain flat and not lower than the cavity margin. A flat floor is provided to prevent movement of the filling under stress of the plugger or from the impact of mastication. The absence of a groove across the floor will avoid possible fracture at the margin in introducing the filling material. From the gingivo-lingual and from the gingivo-buccal angles grooves are extended upward toward the occlusal surface at the junction of the lingual and buccal walls respectively with the axial wall of the cavity. These grooves are to be made only of sufficient depth to maintain the filling material in position, great care being exercised not to weaken too much the lingual and buccal walls. The axial wall should be perpendicular to the floor of the cavity, and its plane, as its name indicates, is parallel to the long axis of the tooth. Any existing fissure should be cut out to the most remote part and in many cases a step may be made to reinforce the retention of the filling material.

A suitable hatchet excavator is employed to cut a smooth margin at the gingival portion, after which it should be polished with a suitable instrument in the engine. The entire cavity margin is cut in one continuous curve, any angles here being studiously avoided.

The sand-paper discs, preferably Moore's, should be used for polishing the margins and for securing a proper bevel. The margin at the cervical portion need not be beveled at as great an angle as elsewhere, but at the lateral margins it should be at about 45 degrees; a radial line from the tooth center regarded as a base. This provides the best mechanical form for the protection of the marginal enamel prisms.

Upon the occlusal surface margins should be prepared with the indicated instruments. Here the cavity walls should be perpendicular, under cuts being avoided.

Assuming now that the cavity is prepared for the filling, adjust a band matrix. The writer is particularly inclined toward tin and gold for the restoration of cases of this kind. Amalgam will not be considered in this paper. Dr. Amber's tin-foil, followed by Ney's cohesive gold, meets with great favor in my practice.

The tin is used in the same manner that gold would be introduced, using pellets cut from ropes of half sheet No. 5 foil. In working tin foil in the filling of teeth the same instruments may be used as would be employed with gold. The Watling set of gold pluggers are admirably adapted to the purpose and especially when using the lighter foils. The writer also finds that with the addition of two matrix pluggers, one right and one left, he is able more satisfactorily to condense the foil between the matrix and the lateral walls of disto-occlusal cavities. These pluggers (see illustration) are foot pluggers and are made from my patterns by the S. S. White Company with special reference to these cavities in the bicuspids or molars. They are also of flat-iron shape so that the foot portion can be inserted to the extreme part of the angle made by the matrix against the beveled cavity margin. Only the hand mallet is used by the writer, Dr. Jenning's pattern being preferred to any other; weight four ounces.

Dr. Ambler's tin is a delight to use. Gold can be made to adhere with remarkable tenacity and I have the feeling when employing these things that my patient is getting the best service that I am able to render. Sometimes tin is used for filling the first two-thirds of the cavity and completed with gold, and sometimes only one-third tin is employed, according to the case in hand. I do not use tin and gold folded together, though undoubtedly good fillings can be made in this way.

I am partial to tin because it is very adaptable, because it has therapeutic value in the subsequent oxids and sulphids, because it is four times as good a nonconductor of thermal change as is gold, and last, but not least, because it *saves* teeth.

In finishing, a heavy gold foil, No. 30 or No. 60 is used, though No. 4 is used in pellets cut from ropes of half sheets prior to the last few pieces. The filling being inserted, remove the matrix and before polishing go carefully over all margins possible with a suitable steel burnisher to insure a more perfect condensation of material at these critical points. Polish them with oiled Moore's discs and burnish again with steel burnisher and make the filling as you would make it if your entire future success depended upon the operation in hand. In every step of the entire operation remember that it is faithfulness to the minute details of the work that brings success. These fillings are difficult, tedious and nerve taxing to dentist as well as patient. They should be made the best possible and the fee should be in proportion to the service rendered; never more and very certainly not less. I have said nothing about sterilization of dentin, nothing about pulp complications, very little about instrumentation, but one can't say all in a single paper.

To briefly summarize then, I would say first, in operating we ought to appreciate keenly the large number of things involved in the treatment of these cases—and aim toward the ideal by paying due regard to minute details. Secondly, to discourage the use of amalgam, and thirdly, to advocate the use of tin and gold.

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EDUCATIONAL SYSTEMS.*

BY W. C. BARRETT, M. D., D. D. S., M. D. S., LL. D., BUFFALO, N. Y.

We meet here in the mutual endeavor to establish universal professional comity. The representatives of many nationalities are gathered to magnify the semblances and to minify the differences that exist among us. Our earnest desire is to agree upon some common ground on which all may meet in harmony, to perfect some form of organization that shall know no language, speak no tongue save that of fraternity. Dentistry has grown too great to be confined within the bournes of nations or to be limited by rivers and seas. There should be no such thing as American, or English, or German, or French dentistry. Whatever may be the national fealty of each, our professional allegiance is as wide as civilization. If we are true healers, if we follow in the footsteps of the Great Physician who went about doing good, we are necessarily inspired with a sentiment which makes Russian and Italian, Spanish and American, the people of the Occident and of the Orient, brothers in heart, each entitled to fraternal recognition and welcome.

This has not always been accorded in the past. No one can of right be accorded fraternal recognition unless he shall primarily have received proper professional training. It is the province of the professional school to furnish this and to prepare the neophyte for entrance into the organized solidarity. For the attainment of this universal professional harmony, there should be some generally accepted curriculum of study, for the future dentist must be what the school shall make him. There can be no international professional affiliation until an international standard shall have been agreed upon by which all may be judged. To facilitate such general understanding this meeting of representatives from all countries having a systematized method of dental practice has been called. In this view I believe it pregnant with more of interest to dentistry as a whole than any meeting ever yet held. Were I not thoroughly convinced of this, I should not have crossed an ocean to attend it.

But I apprehend that its greatest possibilities cannot be compassed without first comparing the different national systems of organization, in the sincere desire to select from each those features which are wisest, that a composite whole may be created to be in due process of time adopted as the common ground upon which all may stand, and through which the desired international comity may be established.

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*Extract of paper read before the International Commission of Education of the International Dental Federation, at Stockholm, August 16, 1902.

(Here Dr. Barrett cited at length the growth and development of dentistry in America with which our readers are familiar.—Editor.)

Continuing, he said: Permit me now for a few moments to turn to the organization of dentistry and dental teaching as commonly observed in Europe. The same problems confronted the pioneers there that had been encountered in America. Medicine could not consistently adopt as a part of its curriculum anything mechanical. Handicrafture was supposed to be antagonistic to professional sentiment. Hence, if dental teaching was to be conducted in strictly medical schools, that part must be eliminated. It was deemed essential that the professional relation be maintained, or dentistry would be likely to degenerate into a mere trade. So the mechanical was segregated from the medical, as optics has been separated from ophthalmology. The accepted instruction became entirely medical, and the licensing power was in most instances vested in medical boards. As the curriculum of study was not sufficient to permit the medical qualification to be given, the practice must necessarily be subordinate to that of medicine. But as it was recognized that the dentist must have a knowledge of the practical, and that his daily routine of work must embrace both therapeutics and handicrafture, this was in general provided for by requiring instruction for a definite period at the hands of a preceptor, thus presenting the anomaly of making a portion of his practice professional, while that upon which he must largely depend for support had no professional recognition whatever.

And herein, I apprehend, lies the essential difference between the American and the European systems of dental organization and instruction. It has in the past been impractical for either to give full recognition to the educational courses of the other, and hence there has been but little of real interchange of professional courtesy or comity. In America, under our system, we can accept no instruction as professional which is not given by men having direct connection with the responsible faculty of the qualifying institution. The teaching of prosthesis is an integral part of the school curriculum, its methods are under faculty supervision and the examinations in this department are conducted precisely as are those in the medical branches. Under our present school methods we can give no recognition to the system of indenture so common in Europe.

On the other hand, American courses of instruction are not accepted in Europe, because it is urged they are not strictly professional. The teaching is not always given by recognized medical instructors, nor in strictly medical classes. The examining authorities have no direct medical affiliation and the license to practice is not subject to medical supervision. As I comprehend it, the objection is that too often dentistry is not professionally taught because it is segregated from professional medicine and made a thing by itself. In other words, America will not accept European courses because a part of the instruction is outside the dental college authorites, while Europe rejects the American because it is not. The European curriculum must either be strictly medical or extraprofessional, while the American must be wholly collegiate but not necessarily medical. The one is identical with medicine, the other only closely affiliated.

There may appear to be special advantages in both systems. Their differences are not insurmountable. A spirit of mutual conciliation and good will, a sinking of the asperities too often connected with national characteristics, a sincere desire to discover some mutual ground common to both and to establish a system of education and practice that shall organize the dentists of the world into one great homogeneous profession, might easily devise a universal curriculum of preparation that shall be a passport to all dental circles and make every worthy practitioner the colleague of every other, irrespective of name or tongue. This certainly is a consummation devoutly to be wished, for it would be a long step toward the millennial day when man shall no longer seek the destruction of his fellow-man, or labor for his physical or moral downfall. If this great meeting shall do anything to facilitate that end, it may take its place in history as one of the most important ever convened.

THOUGHTS ON THE PROFESSION.

BY DR. W. H. STEELE, HASTINGS, NEB.

Very few young men when locating in a new town realize how their every act, from the furnishing of the new office to the collection and the paying of their bills, is watched and weighed by an ever observing, critical public. When a patient steps into our office for the first time an impression is usually formed for or against us, and a tidy office has much more to do with the forming of this impression and our success than we have any idea of. Our patients are more observing than we sometimes suppose, and notice things that reflect unfavorably upon us, hence, we need to be everlastingly on the alert and see that ourselves, our office appointments and instruments are such as will bear scrutiny and defy criticism. One may not be so financially situated that he can furnish an office elegantly, but there is no excuse for dusty furniture, unswept carpets, be-spattered spittoons and dirty instruments. A dentist who is particular about keeping his office and its appurtenances neat and orderly is likely to be particular and thorough with his operations; the public know this, and it is a strong point in gaining public confidence and patronage. While a pleasant, well equipped office is a good introduction to a new patron, it requires much more than this to gain their confidence and respect and retain them. It demands integrity, cleanliness in all operations, thorough manipulation, artistic skill, kindness and courtesy. Many a good patient has been lost on account of a bloody spittoon, or a bill that had run so long that the charge was thought exorbitant when finally presented for payment. There is no profession in which the personality and artistic skill of the man cuts any more important figure than in dentistry. And the dentist possessing these qualities need not advertise his superiority through the press. His work gives every day unwritten evidence of his ability, far more telling than anything that could be accomplished through the use of printer's ink, and its veracity cannot be questioned by the most skeptical. Too many dentists, especially in the early part of their career, make the mistake of relying too much on the distribution of printer's ink for the building up of their business. Let any enterprising, talented, incoming young member of the profession take the pains to instruct himself in the business methods of those dentists who have come out best, both financially and in reputation, after a twenty-five years' career and see whether the successful men were those who relied on printer's ink and cut prices. I think that he will find that those who have attained the greatest success are the ones whose aim has always been to do first-class work, work such as they might feel proud of, and at prices that remunerated them for the labor and skill which they bestowed upon it. Such methods require a little more time to build up a business, but they are sure to win. The moral effect of a bank account on a man's business success cannot be over estimated. No man can do his best when his mind is distracted from his work. "Worry drys the blood more than care or sorrow," therefore it is essential, if a man would at all times be in a position to put forth his best efforts, that he be pecuniarily independent; that his finances and his credit be so perfectly established that a season of depression in business shall lose its terrors, and that worry at least from this source should be an unknown factor. It is easy to meet bills when business is good, but when poor it is a source of worry which affects the temper of the man and the quality of his work; he loses his feeling of independence and unless he is an actor of more than moderate ability this fact will soon become apparent to his patients. The only remedy for this evil is a bank account, that can be built up in good time, and drawn upon when business is poor, by this means we will always be able to meet our patients with a smiling face and put forth our best efforts, instead of worrying about butcher's bills, tailor's bills, and rents. Many bright young dentists who locate in the smaller towns are in danger of getting into a groove. They are fresh from school, up to date in methods, and soon get a good practice, but are liable to become avaricious and devote too much of their time to the business side of the profession. They do not keep read up; do not attend the dental societies, and about the time they should be at their best they are twenty years behind the times.

Young Dr. B— comes in and locates across the street; practice begins to drop off, and the old doctor awakens to the fact that he will have to move west and locate in a smaller town. We older members of the profession have all seen such sad failures. The way to avoid it is to keep up with the times; take the dental journals; take an active part in your state and district societies, and thus avoid fossilization.

SOCIETY PROCEEDINGS

INTERNATIONAL DENTAL FEDERATION COMMISSION OF EDUCATION, SECOND GENERAL MEETING, HELD AT STOCKHOLM, SWEDEN, 1902.

INTERNATIONAL DENTAL FEDERATION.

WEDNESDAY, AUGUST 19, 1902.

The opening session of the second general meeting of the International Dental Federation was held in the Caroline Institute, Wednesday, August 19, 1902, with Professor Lindstrom in the chair.

Professor Lindstrom in fitting words welcomed the members of the Federation.

Dr. Elof Forberg then addressed the Federation in behalf of the local committee, expressing in eloquent terms the satisfaction of the Swedish Dental Society in having the Federation meet at Stockholm.

After these preliminary proceedings, Prof. Ch. Godon, Paris, delivered his presidential address, an abstract of which follows:

Last year, at Cambridge, we had before us the completion of our organization, the adoption of a constitution, the appointment of the necessary committees, and the planning of our future line of work, as it was necessary to define the field of action of the Federation; also, to reassure all those who feared any interference on our part with national affairs; in one word, to limit the field of activity in which we could exercise our influence without fear of wounding legitimate susceptibility. Each country depends on its habits, historical evolution, and laws, and, as all these conditions differ greatly, our International Commission cannot pretend, —as our colleague, Professor Hesse, of Leipzig, has stated,—to do anything beyond expressing opinions and giving advices which have no real authority, but which have, however, a certain moral influence because of the standing of the members of the Federation, and may therefore be taken into consideration by those qualified in each country to voice decisions of legal power. Your functions are hence limited to that of a great international advisory council on dentistry. The discussions have been kept within the bounds of theory and philosophic generalities, and there is no cause for anyone to complain that it should have been thus, especially when we recall Sir Michael Foster's remarkable address, in which he pointed out the most important requirements of the different kinds of preliminary education preparatory to the study of the various professions, that of dentistry in particular. He said that education should be fashioned after the manner of a cone, starting from a broad base and narrowing to an apex, for it is the conical bullet that has penetrating power. For each profession the cone should be different, should be fashioned in different ways, though in each case it should start from the same broad base. He indicated what this cone should comprise, analyzing the essential requirements for the dentist.

This admirable address was followed by one from an eminent surgeon of the same university, in which he defined, with as much authority as the previous speaker, the differences which should exist between the trainings of the physician, the surgeon, and the dentist, and in concluding affirmed the necessity for the dentist to be specially trained from the beginning to the end of his course of professional studies, as had been previously asserted by Dr. Kirk, the dean of the faculty of dentistry of the University of Pennsylvania, and Dr. Brophy, the president of the International Commission of Education. Dr. Kirk insisted upon the importance of undertaking the manual education early in life, for a period quickly arrives in later years when such training becomes impossible. It was this fact which was already recognized by Sir John Tomes, the Nestor of dental education in England, as Dr. Kirk has called him.

Some members, Dr. Arkovy, of Budapest, among them, maintain altogether opposite ideas, namely, that dentistry is a medical specialty similar to all other specialties of the healing art, and must therefore be taught under the same conditions as these specialities are. They claim that the preliminary education of the dentist should be of a purely medical character, that the candidate should be a holder of the medical degree, and that only then should he take a special course in dentistry. Others advance opinions favoring a mixed education taken from both the medical and dental curricula.

These theoretical discussions have given rise to three questions which the members of the Commission have been asked to treat. Some national federations have also been requested to discuss these topics, and it remains with the Commission of Education to draw from these discussions clear and precise statements that shall serve as a basis to our discussions, and if possible to bring about a general understanding among our delegates. But the object of the Federation is not limited to the study of the best system of dental education; public dental hygiene is just as important a reason for its existence, and it is this topic that presents the greater degree of interest to the public and to the various governments. The Commission appointed last year has prepared reports in which they devote especial attention to the present status of public dental hygiene in the various countries here represented. These reports have awakened an interest on this important subject and new members have asked to contribute toward solving this problem of unquestionable value and importance. The Commission will have to outline its plan of work for the future by determining the questions to be examined and discussed in the following meetings by the aid of suitable reports, as has been done already in the case of the Commission of Education.

There is another question on which a report has been prepared. It refers to the federation of dental schools. A proposition embodying this idea was presented at the Third International Dental Congress, where it was seriously considered. As a matter of fact, it exists already as a national body in the United States and comprises more than two-thirds of the American schools. It has helped considerably toward the unification of the dental curriculum and is a factor in the progress of dental education in that country. In France a similar federation is being organized. We all realize what a mighty influence such an international body would have over the great problem of dental education, if, while respecting the autonomy of national federations, it were possible for it to bring about the acceptance by all dental schools the world over of a uniform program comprising a minimum number of studies embracing all the topics a dentist should be familiar with in order to deserve this qualification and also in order to be able to practice his profession to the benefit of humankind. It is to be hoped that the discussions which will undoubtedly follow the voluminous report at hand will bring about the realization of this plan.

The work of the Federation during the past year calls for the appointment of new committees. We must also set right the basis of the Federation, which is formed by the different national federations, which unfortunately have not been organized as yet in a regular way.

Lastly, we must see to it that the different governments take an interest in the work of the Federation, appointing delegates to our annual sessions, so that they may be able to learn from official sources the resolutions which we may adopt and which could be taken into consideration for the enactment of new legislative measures.

Working thus, we will advance toward the Fourth International Dental Congress, the preparation of which has been entrusted to us. It is there that the dental world will be enabled to make a new inventory of the recent progress realized by odontological science.

If we are able during this quinquennial period to insure that the work of the Federation will be carried on regularly, if we can carry it to altitudes where ideas shall meet in peaceful controversies, to unite later on and collapse as the clouds do, after a most terrific storm producing copious and fruitful rains, which finally result in abundant crops, then we may be able to retire with quiet consciences, leaving the future to others, feeling that we have not wasted our time and that our efforts have been fraught with beneficial results.

Dr. Florestan Aguilar, the treasurer, then presented his report.

Addresses followed by Dr. Hesse, Germany; Dr. Harlan, United States; Dr. Harding, England; Dr. Franck, Austria and Hungary; Dr. Heide, France; Dr. Guerini, Italy; Dr. Guldeberg, Norway; Dr. Frick, Switzerland; Dr. Morrisson, Australia; Dr. Royce, the American Dental Society of Europe; Dr. Weber, Finland.

CURRENT ARTICLES

[Condensed for THE DENTAL SUMMARY readers.]

HOW I CROWN ANTERIOR TEETH WHEN BROKEN BELOW THE ALVEOLAR PROCESS.

BY H. B. HARRELL, D. D. S., GAINESVILLE, TEXAS.

I shall attempt to explain how I successfully and satisfactorily crown roots that have been previously crowned, and, by misfortune, have had a piece broken from their front, below the process, from one-third to two-thirds the length of the root.

I proceed by carefully detaching the gum from the loose piece of root with the lance, and in removing the loose piece being careful not to deface the piece or slip the gum; I then prepare the remaining root by removing the cement and deepening the canal; I then pack the canal and socket with some material to keep the gum from closing in. With the root thus prepared I proceed to make the crown by spreading a little plaster on a tablet, in which I embed the gum surface of the piece of root removed, leaving the fractured surface and end exposed above the plaster. I now place the small end of an open thimble around the piece of root, and into this I pour Melott's Fusible Metal, just as it is becoming mushy; this makes one die; and into this die I drive a large buckshot for the other. Between these dies I swage a thin piece of platinum plate; this gives me a platinum cup. I flow this cup full of 22-karat or 24-karat gold, trim and dress off the lap edges of platinum, and I have the piece of root duplicated in metal. I now place the duplicate in place in the socket from which the natural piece of root has been taken, and take a measure, make and fit a band. With this duplicate and band in place, I take an impression of the end of root with whatever material that suggests itself as most suited. Into this impression I assembled the band and duplicate in their proper places, invest and solder the band and duplicate together with a high karat solder. I then place the band and duplicate in place on the root and grind down the front as much as the case requires, now using the band and duplicate as a band, finish the crown as I would a Richmond crown. Set with cement, and when it is shoved home, the metal duplicate will fit its place in the root like a well fitting inlay, cutting off the cement to a fine line.

When the surplus cement is removed, there will be no rough surface, open joint or crack against and under the gum. There will be no recession, but the gum will remain as plump and healthy looking over the polished surface of gold as ever, and you have a crown equal to a banded Richmond crown.—*Texas Dental Journal.*

RECOVERING AND REFINING WASTE GOLD.

BY H. J. GOSLEE, D. D. S., CHICAGO, ILL.

While it is very probable that the average dentist will have neither the time, inclination nor facilities for recovering the waste gold which daily finds lodgment in, or becomes attached to, sweepings, rugs, carpets, disks, strips, etc., yet the method usually employed in obtaining and refining it may be of some general interest.

The sweepings and such various articles as may contain gold are first placed in a suitable vessel, and subjected to a degree of heat in a blast furnace which will reduce them to ashes and residue, after which this latter is then *finely powdered.*

The gold, together with its impurities, can now be separated from most of the ash, carbon, sand, etc., by a mechanical process of *washing,* in which, because of the high specific gravity of the metallic masses, the latter will seek the lowest point, allowing the residue to remain on top.

The gold may now be extracted from the remaining mixture of heavy material by the following method: Treat with nitro-hydrochloric acid (aqua regia), heat gently, agitate occasionally, and then allow the mixture to stand for a few hours.

The solution is now evaporated until all free acid has been expelled, when it is allowed to cool, and alcohol and potassium chloride are added, which precipitates any platinum that may be present.

The gold may now be precipitated from the *filtered* solution by adding ferrous sulphate, c.p., or heating it with a solution of oxalic acid, when the precipitate, a fine brown powder, should be washed with distilled water, placed in a graphite crucible and thoroughly fused with potassium nitrate (saltpetre), or borax, as previously indicated.

The molten metal may be then poured from the crucible into a previously warmed and oiled mould, when an ingot of pure gold is obtained, which may be alloyed, if desired, and rolled out to suitable thickness for use.—*Items*

A METHOD OF TREATING PYORRHEA PERIDENTALIS.

Assuming that every dentist knows the diagnostic symptoms of pyorrhea peridentalis, I will briefly describe the method of treatment.

Provide yourself with pyorrhea scalers; they should have slightly curved shanks, and long, thin, quite stiff blades, turned at the end to a hoe-shape. This turned blade should be very short, not more than one sixty-fourth of an inch. Keep them sharp and thoroughly disinfected.

When the disease is not far advanced and the pus-pockets are not too deep, scrape the diseased roots thoroughly; extend the scraping beyond the zone of disease. Syringe out all dislodged calculus and diseased matter, and apply a formalin solution (one part in five parts of water). The foregoing is a well-known method of treating the disease in cases of single-rooted teeth and is often successful, but in multi-rooted teeth I find it seldom successful.

When the disease is well established and the pockets deep, inject cocain and extract the diseased tooth; pack the alveoli with cotton, saturated with the formalin solution before mentioned, and dipped into cocain crystals. Remove the pulp from the extracted tooth, and swab out the canals with formalin; fill the roots with gutta-percha, and scrape all remaining pericemental membrane, calculus, and other adhesions from the roots. Now disinfect thoroughly, replant the tooth and ligate to adjoining teeth with fine flexible wire. Treat antiseptically until all inflammation subsides. The tooth will become firm, the gums will become healthy,

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and the process will not resorb. I am convinced that the disease in that particular tooth will be cured, never to recur.

I wish to say that I am certain that pyorrhea peridentalis is a disease of the peridental membrane, primarily. From it the alveolar process may become affected or the root necrosed if not treated in time.

I would suggest that, unless one has perfect confidence in his surgical ability and is equipped for antiseptic operations, it will be better to refer the patient to a specialist.—*Stomatologist.*

PREVENTIVE DENTISTRY.

BY C. M. WRIGHT, D. D. S., CINCINNATI.

There can be no question as to the fact that dentistry is founded on hygiene, and that from the beginning dentists have been as deeply interested, theoretically, in preventing as in curing disease.

From the beginning it has been held that "clean" teeth are far less liable to disease than are neglected ones, and yet from some faults in habits of practice, rather than in theory, the dental profession has slighted a fundamental operation in prevention and devoted itself to more attractive and ingenious methods of cure and *partial* prevention.

Dr. D. D. Smith, of Philadelphia, has lately called the attention of the profession of America to this neglect, and pointed out some of the important results of a thorough and *frequent* polishing by hand, with orange wood and pumice, of all the exposed surfaces of the teeth. He has also forcefully advocated a method of practice which is strictly logical in its relation to *real* prevention.

Personally, I entirely agree with Dr. Smith, but, recognizing the difficulty of changing habits of practice and of educating the people to accept the change, I suggested a few months ago a scheme for the forming of a subspecialty in dentistry. I urged the colleges to establish a special partial course for the training of cultured women in this one line, viz., the polishing of the teeth and the care of the mouth. The paper was printed in the April, 1902, number of the *International Dental Journal*, of Philadelphia, and kindly commented upon by Dr. Truman in an able editorial in the same journal. The operations require considerable time and skill, and heretofore, from our habits of slurring and our wrong methods of adjusting a compensating fee, we have not been able to afford the proper service.

Can we modify our practice? We are visited semiannually or oftener by numbers of our careful patients for "examination." Our examinations mean too often only a search for carious cavities, which we expect at a later appointed time to treat and fill. If we find two or six cavities we reserve the proper time, and charge for each filling as an operation, or for the one, two or three hours of the sitting. We may even spend a part of these hours in removing accretions of tartar and in rapidly polishing the surfaces exposed to sight with brush-wheels, disks and points in our engines. Then if we "itemize our services," even in our own minds, we say: "One gold filling in bicuspid, so much; one "t.g." in crown of molar, so much; removing tartar, so much." The last item is the obnoxious stumbling block. It is "cleansing a *set of teeth*," not polishing, or treating by massage a central incisor, or a cuspid, or molar. It is not, as Dr. Smith insists upon calling it, a "prophylatic operation" upon each tooth liable to disease. This prophylactic operation upon one or several individual teeth would be the scientific treatment of applying at frequent intervals an irritation that is not simply for the removal of adhesive plaques and accretions of fermentable substances, but a stimulation of physiological forces within the tooth and about the root or roots of the tooth, in the pulp and pericemental membrane, as well as the epithelia of the gingival border. These forces offer natural resistance to external injurious agencies. When these forces are dormant we have, without doubt, the predisposing causes of more than one disease of the tooth and its surrounding tissues.

Suppose as a profession we come to a full appreciation of the value to the human family of this one fundamental proposition, viz., that if a tooth be skillfully rubbed or polished on every exposed surface once every month or once every fortnight, adhesions will be kept away, the effects of fermentations will be obliterated, pulps and nourishing membranes will be stimulated to healthy and normal function, and caries and septic gingivitis will be positively prevented. Would it be worth while to impress the doctrine on our patients and change the methods and habits of our daily practice to meet the requirements? Many of us would lay aside our gold foils and porcelains and much of the paraphernalia of our offices, and make a specialty of this *prophylactic sur-*

gery. Preventive dentistry, so-called, would prevent diseases—dental and oral—but would increase enormously the demands on the dentist's time and services. This is why I advocated the establishment of a class of subspecialists.

The field of operating, in schools and homes and in our offices is world-wide, and the laborers have not yet come forth.

I have offered two suggestions and am thoroughly imbued with the importance of them. I regret the inability to forcibly express myself and make the pictures live in your imaginations as they do in mine.

The first of these is to establish a special course in dental colleges for the teaching of prophylactic dental surgery as a specialty. The second is to individualize the teeth and to learn to treat each tooth singly, and to consider the operation on each tooth as worthy of a fee.

I shall not enter into the question of cost to the patient at this time, though I think each of us can prove by a study of past records of patients whom we have treated from their childhood that if we had pursued the plan suggested the expense to them would have been no greater, and the results infinitely more satisfactory.—*Lancet Clinic.*

METHOD OF MAKING DUMMIES.

BY J. R. MITCHELL, PERTH, CAN.

Having the abutments properly fitted and in position, complete in the mouth, taking care that the space between is not so dovetailed that they will not go on when fastened together, take an impression in compound and remove the abutment crowns and place in the impression. (I should have taken the bite while the abutments were in position in the mouth.) Where gold caps are used, it is better to fill them with sand and plaster or whatever is to be used for investment for soldering. This avoids the difficulty of cutting out the plaster after the bridge is removed from the model. Then fill in the rest of the impression with plaster. When set, remove and place on the bite, and put in the articulator. We are now ready to put in the dummies. In a bridge back of the cuspids, for dummies, I use Ash's diatoric teeth. The teeth being selected beforehand to fill the space and the proper shade, they are ground the required length, that they may not sit too closely to the gum, at least 1-16th, or nearly so, of an inch space should be left for the gold, which is put on the neck of the tooth in place of on occlusal surface, as in the old style.

In selecting the teeth, we must be careful that each tooth lacks twice the thickness of 32-gauge gold of filling the space it will occupy when finished (the reason for this will be seen later).

The teeth having been ground the length as directed, a gold cap of 32-gauge gold is made to fit each tooth closely. It is probably better to make a metal model of the tooth to make this cap on, as it must fit it very closely. The buccal side is removed from the cap, leaving a small band around the neck of the tooth. A hole is punctured in the bottom of the cap to admit of a pin, which will pass up into the hole in the diatoric tooth. This pin, which should be made with a head on the end, which is inserted in the tooth, is better passed down through the bottom of the cap until it will let the tooth sit right into the cap. The pin is then soldered to the bottom of the cap.

When the caps are made, the teeth are placed in them, and they are set on the articulator in proper position, and the caps are waxed in position and fastened to the abutments. (Care must be taken not to let the wax fasten the teeth to the caps.) When all is set in position, remove the teeth from the caps, then remove the whole bridge and solder the caps and abutments together; when polished, the teeth are cemented in the caps and the bridge is completed.

The advantages of such a bridge, I claim, are:

1. We have as much strength, with less gold.

2. We do not expose one-quarter the amount of gold as when the biting surface is all gold.

3. We do away with that shelf which seems somewhat uncomfortable to the patient at first.

4. It feels more comfortable to the tongue of the patient.

5. It can be more thoroughly cleaned by passing a small cotton cloth over the top.

6. We do not have any anxiety about the porcelain cracking in the soldering, as they are not there.

7. It can be constructed in all in less time than the ordinary bridge.

I might add that in grinding the teeth they should not be ground concave, for if the gold is concave on the top it will form a lodging place for food, from which it would be difficult to remove it.—*Extract, Dominion Journal.*

THE METAL LIGATURE IN ORTHODONTIA.

BY EDWARD H. ANGLE, D.D.S., M.D., ST. LOUIS, MO.

The introduction of brass wire as a substitute for fibrous ligatures in orthodontia marks a far more important step in the evolution of this science than many might at first suppose. Its great strength, cleanliness, and freedom from stretching are valuable qualities, and contrast mightily with fibrous ligatures. When properly managed, freedom from slipping greatly reduces the necessity for the plain cement bands as a medium of attachment, with the consequent saving of time, inconvenience to the patient, and proportionate freedom from conspicuousness. These are all qualities which will make it more and more appreciated as it is better understood. But a quality greater than these, and one which places it in a class by itself among regulating appliances, is that as a ligature it may be contracted or reduced in size from time to time by an additional twist of its united ends (as in the tightening of the screw in a clamp band), thus exerting much force with the minimum of bulk and material. So it becomes an appliance within itself, as well as an auxiliary to other appliances; and it is destined to render obselete many of the so-called "ingenious little appliances" which depend for power on small screws, minute springs, or rubber ligatures (such as Dr. Farrar's).

The springing backward and forward of a tooth during its movement into correct alignment is the source of nearly all the pain and soreness experienced in regulating. This most unnecessary cause of irritation is usually due to defective appliances which require frequent removal for repairs, change of form or to intensify force, or for purposes of cleansing. Here, again, is shown the great contrast between the wire and the fibrous ligature. With the former the relinquishment of pressure is but rarely necessary, while with the latter each renewal necessitates the relinquishment of pressure, with the release of the tooth and consequent inevitable irritation. The comparative value of the two kinds of ligature is easily determined by their use in the same mouth, and the great contrast soon shown.

Experience in the use of this wire in the correction of malocclusion of the teeth will surprise anyone with its many and valuable uses. Its greatest value, however, is probably when used as a ligature in connection with the expansion or contraction arches. This makes a combination which for efficiency and simplicity is unequaled, and which is so universal in its application that it has almost superseded all other devices in the writer's hands. Yet the arch form of appliance would sink to third rate without the brass ligature.

In using the wire ligature, a piece at least one foot in length should always be used, or sufficient to permit a firm grasp with each hand so that great force can be given before making the twist, which should never be more than a three-quarter turn at first. A greater twist will add nothing to the locking qualities, but only interfere unnecessarily with the lips or cheeks. After the three-quarter turn, the superfluous ends should be cut off, leaving about one-eighth of an inch extending beyond the twisted portion. These ends are then bent out of the way, so they will not abrade or irritate the lips or cheeks. In tightening a ligature by subsequent twisting it is best to exert pressure upon the expansion arch and moving tooth between the thumb and finger. At the same time the ligature is given an additional quarter or half twist by means of a pair of pliers with suitable beaks. For this purpose there are none better than the How pattern of crown pliers (straight). Experience in the use of the wire ligature will enable the user to develop great skill, as well as suggest almost limitless ways in which it can be used to advantage.

Its valuable qualities are not limited to the movement of the teeth alone, but are also very useful in retention; for with it teeth may be firmly bound and securely held, either by the wire alone or in connection with other retaining devices. As it is a well-known fact that but little force (if it be constant) is necessary to retain teeth, the wire may be of much smaller size than that used in the movement of the teeth,—again reducing the bulk and conspicuousness to the minimum, which is something that is much to be desired and that is greatly appreciated by patients in the long retention of teeth.

After experimenting extensively with different kinds of metals and alloys, the writer believes that a proper quality of brass easily leads all other metals as ligature wire. But it is important that it be of the proper quality and carefully made. Much of the ordinary brass wire of commerce is almost useless for regulating. It should possess to the highest degree the following qualities:

First: Tenacity.

Second: Pliability.

Third: Uniformity and smoothness of surface.

If it be springy, stiff, and harsh, it will break under the strain of twisting, aside from being difficult of adaptation. If the surface be rough and beady (a very common fault) its strength will be greatly impaired.

Three sizes are found useful, the finest being most desirable for retention.

Brass wire of a proper quality is practically indestructible in the mouth. I have seen this metal present a clean, bright, beautiful appearance, after being worn in the mouth for two years.—*Dental Cosmos.*

SUGGESTIONS

POTASH ALUM INSUFFICIENT TO PREVENT EXPANSION OF PLASTER OF PARIS.—STEWART J. SPENCE, HARRIMAN, TENN.—About a year ago I renewed my experiments with potash alum, but with similar unsatisfactory results. Some eight or ten casts, poured in an impression cup, in proportions of alum varying from six to forty grains to the fluid ounce of water, showed best results with six grains. The very large quantities of alum set free of gas, which, if the mix was not long stirred, produced a porous cast; and long stirring causes expansion. Its power of reducing expansion was, at the least, but about fifty per cent., or less.—*Items of Interest.*

PLASTER OF PARIS.—STEWART J. SPENCE.—Plasters supplied by different manufacturers differ in their degrees of expansion. That used by the writer, when mixed most favorably for reducing expansion, showed 0.55 millimeter expansion in three inches.

The same plaster expands very differently according to the length of stirring given it before pouring. In one experiment I made two casts, one of which expanded two and a half times more than the other, from no other cause than longer stirring.

The primary expansion proceeds only during the period in which the heat of the crystallizing cast is rising. This is complete in from five to thirty minutes.

There occurs a second expansion of plaster of Paris, gradually proceeding for about twenty-four hours, and amounting to about one-fourth to one-fifth that of the primary expansion.

There is a third expansion of plaster of Paris. A number of old casts which had been run in impression trays were placed in the vulcanizer for one hour at 320 degrees F. They all came out badly swollen. This, their third expansion, was equal to both their previous expansions together.

A plaster model is so forcibly expanded by the action of steam during vulcanization that it overcomes the resistance to expansion offered by the vulcanizing rubber, and swells.—*Items of Interest.*

Gold Inlays.—F. H. Metcalf.—In every day practice the gold inlay has not received the attention that it merits. It has the advantage over porcelain in strength, and in the posterior teeth, when properly inserted, is both durable and sufficiently artistic, but here, like everywhere else, the inlay is a question of detail.—*Gazette.*

Contraction of Wax.—Stewart J. Spence.—To test contraction, experiments were made in pure beeswax, also in the paraffin wax put up by the Standard Oil Co., and in the composition known as "sticky wax." The beeswax was found to have about the same contraction as modeling composition, while sticky was seemed to have a trifle more. The paraffin showed great contraction, about one-sixteenth of an inch in six inches.—*Items of Interest.*

Warpage of Plaster of Paris.—Stewart J. Spence.—The effort of plaster of Paris to expand laterally in taking impressions meets with the resistance of the unyielding flange of the impression tray and, as a consequence, the plaster domes up at the palatine arch. It is obvious that a similar bulging occurs in the model, which meets in the labial and buccal surfaces of the impression similar resisting walls to those met by the impression in the flanges of the tray: Nor do these bulgings counteract each other, for both proceed in the same direction.—*Items of Interest.*

Care in the Use of Cassia Oil.—C. H. Walsh.—Cassia oil easily heads the list, it being the most potent of the essential oils as an antiseptic, but we must also keep in mind that it is also a most powerful irritant; on this account few are the places where cassia can be used successfully. While cassia is a useful oil, it is frequently misused through ignorance of this fact; it has been amply demonstrated that if this agent is left in contact with the soft parts it will cause blister to form in twenty-four hours.—*Extract Dominion.*

A Pregnant Cause of Misfits.—Stewart J. Spence.—The dentist who uses ordinary plaster of Paris for models has to contend with three expansions in his model, and, if his impression was also of plaster of Paris, with at least one expansion in it, besides the warpage of both impression and model which occurs from restricted lateral expansion. No wonder so many vulcanite plates are poor fits!—*Items of Interest.*

CARE OF HYPODERMIC SYRINGE.—This little instrument should never be allowed to become dry, this evidently being the cause of the annoyance which you experience. As a preventive, put a few drops of glycerine in the syringe after using it, this will keep the leather soft and will act as a lubricant to the instrument. In case you neglect to do this and the leather is dry, soften it by immersing in cold water (never in hot water for this purpose), then allow it to remain in a glycerine bath for some time.—*Brief.*

POORLY ADJUSTED BANDS.—J. R. MITCHELL.—One of the principal causes in the production of so many poorly adjusted bands is too much working from impressions, and not enough upon the actual tooth or root in the mouth; and in order to accomplish good results, the dentist must be not only a good mechanic, but an expert operator as well. I think it is a regrettable fact that this system of working from and depending for our fit from impressions seems to be on the increase, for do we not receive time after time circulars from dental laboratories asking for our patronage?—*Extract Dominion.*

FINISHING OF AMALGAM FILLINGS.—W. N. CUTHBERT.—The whole filling should be smoothed as a last and finishing touch, by using (1) a pledget made of absorbent cotton (in lieu of the amadou pellet), wound around the bur-end of a long-handled drill, from which the roseate-headed bur has been partially obliterated with a file, enough only being left to engage the cotton in the process of winding, so as to form a sort of brush. If this brush be now dipped in water, it makes an efficient instrument by which to smooth a newly-placed amalgam filling, always brushing towards the margins; and (2) a burnisher, when the filling has set sufficiently to admit of this operation.—*Extract Dominion.*

TO PREVENT RICHMOND FACING FROM BREAKING.—J. R. MITCHELL.—We are all aware of the fact that the weakness of the Richmond is the liability of the facing to split off. This may be avoided by carefully tipping with gold, which may be accomplished without rendering the crown unsightly. My method is to bevel the cutting edge, starting a little above the pins; in doing this we must be careful to avoid producing a feather or very thin edge, which will surely crack in soldering. Having beveled the cutting edge, the backing of pure gold is burnished carefully on, and trimmed closely around the tooth; this is then removed, and a piece of pure gold is cut the same width as backing, and deep enough to extend from the pin-holes in backing a little higher than the cutting edge of the tooth (or edge of backing); this is placed on backing, and while held with a pair of soldering-pliers, 20k solder is flowed in to fill up the V-shaped space thus formed. This is replaced on the tooth and pins bent down; thus you have a backing with a strong tip, which will protect the porcelain from concussion and the consequent splitting. The rest of the crown can be done in the usual way. By the method just described you will see that we avoid flowing solder close to the thin edge of the porcelain, and thus avoid the danger of checking it.—*Extract Dominion.*

Banding the Logan Crown.—J. R. Mitchell.—The greater weakness of the Logan crown is in the fact that in the preparation of the root to secure a perfect adaptation the root is so weakened that it is liable to split. This defect may be overcome by banding. This may be successfully accomplished in the following manner: In the first place, in obtaining a properly fitting cap, three cardinal points must be observed: (1) To preserve the interdental space; (2) to avoid encroaching upon the point of union between the gum and root; (3) to avoid having a shoulder above the band for the lodgment of food. To band a Logan crown I do not deem it necessary, as some operators claim, to have a lap joint on the porcelain of the crown to gain necessary strength. Having properly shaped the root so as to conceal the band in the labial aspect, and to admit of the band fitting closely to the root at the upper edge, make the cap to fit closely; then, having reamed out the canal to admit the dowel of the crown, make an opening in the cap to admit the dowel of the crown; then the crown is ground to fit the surface of the cap. This done, the crown and cap are removed, being held in proper position by some hard wax. Invest the crown, leaving the band and dowel exposed in a perpendicular position. The pin and cap can be now firmly soldered together on the inside. I have found that this method prevents the bending of the dowel, and at the same time very materially strengthens the root. The plan of setting these crowns with gutta-percha is a good one, as it lessens the concussion by its resilience, and in case of necessary removal it can be accomplished much more readily than when set with cement. The one great advantage of the Logan crown over the backed and soldered crown is the more natural shade and match obtainable.—*Extract Dominion Dental Journal.*

Dentin Obtundent. — H. Prinz. — In conjunction with cocain hydro-chlorate, eugenol has marked value as an obtundent for hyper-sensitive dentin. To obtain the best results in this connection, the cavity should, previous to its application, be washed out with a warm alkaline solution to neutralize any possible acids present, and dehydrated with absolute alcohol. The eugenol-cocain mixture is then applied, and by means of the hot-air blast forced into the dental tubuli.—*Extract Dental Era.*

Pulp Devitalizing Paste.—H. Prinz.—I have found that a paste made according to this prescription gives satisfactory results:

R	Arsenous acid	grs. xx.
	Cocain hydroch....................	grs. x.
	Eugenol..........................	q. s. to make a paste.

(A small amount of coloring material, such as carmine or lampblack may be added.)—*Extract Era.*

Anchorage for Partial Dentures.—G. W. Pitts.—Burnish thin platinum around the tooth to be clasped, extending it slightly into the sulci. Fit the clasp over the platinum, wax the two together, remove and run solder between them and over the platinum extending between the cusps. The platinum can be perfectly adapted to the tooth, while clasp metal cannot, while possibility of bearing upon the soft tissues is prevented by the projection upon the occlusal surface.—*The Bur.*

Aqueous Obtundent.—A. F. Merriman.—From a careful study of the phenomena we find the relief from pain due, first, to an avoidance of shock brought about by the volume of water acting as a cushion; also by keeping the bur clean the debris is not pressed against the sensitive dentin and reground, as it were, which also prevents the bur from cutting as it does when the water is used. By prevention of heat from friction one is enabled to keep the bur in position as long as it is best to cut. Elimination of jar, which is prevented by the water, not only relieves the shock to the tooth, but to the head and spine, and, in consequence, affords an entire relief to the nervous system. Another pleasant factor is that the muscles of the face do not tire from holding the mouth open, and the hot water seems to sooth the individual, and finally the heat, being communicated by the dentinal fibrils, has a paralyzing effect upon the nerves of the pulp. The possibilities are very great, and in about ninety per cent. of cases there is practically no pain, the most sensitive cavities being excavated with ease.—*Extract Gazette.*

A GOOD MOUTH-WASH.—C. P. PRUYN.—I herewith present to this society a prescription for a mouth-wash which I have been working upon a good many years. This is a strong preparation, and only a small amount is needed. It is very good for inflammation of the mucous membrane wherever located, but if used through the nose it should be weaker than for a mouth-wash:

Boracic acid	3	drams.
Oil cassia	1	dram.
Carbolic acid	1	dram.
Chloroform	1	dram.
Alcohol	3½	ounces.
Oil Peppermint	10	drops.
Glycerin, q. s.	8	ounces.

M Sig. Put ½ teaspoonful in ½ glass tepid water as a mouthwash.—*Extract Digest.*

SOLIDIFIED FORMALDEHYDE AS A ROOT FILLING MATERIAL.—F. B. LAWRENCE.—First, do not dry the tooth, but leave the natural moisture there, and be sure that your polymerized formaldehyde, used for root-treatment, has thoroughly embalmed the protoplasm and put out of use the inclosed nucleus of any germ that does not belong there, that is dead beyond resurrection. That is simply vaseline (exhibiting bottle). If you can make water mix with that, you can do more than I can. Place vaseline upon your mixing tablet. I take one-fourth as much pariform on the end of an instrument as I have vaseline (illustrating). On that little tablet I place the same in vaseline, thoroughly mixing and incorporating the pariform within that vaseline. It does not dissolve, but does become impalpable powder, thoroughly permeating that vaseline. Fill your root-canal with that, being careful not to force it beyond the apex of the root, and seal that. It will produce little or no irritation on account of the vaseline so thoroughly surrounding and incapsuling every atom of that pariform. After you have filled the root, take Sibley's gutta-percha points; push one of the finest up in that canal until you are sure you are at the apex of the root. possibly the sense of touch will enable your patient to tell you that. If it does not fill the root-canal, take another small one and follow it up in size, one after another. The excess of this vaseline mixed with your pariform will exude into the cavity; then with a very hot burnisher, after wiping what is excess with cotton, a very hot burnisher, seal the same, and then if you desire to put a crown on that tooth, don't hesitate.—*Extract Western Dental Journal.*

Setting a Logan Crown.—D. J. McMillan.—In setting a Logan crown, I set it by grinding the roots in such a way as to be concave from side to side, or concave from back to front, or making a concave lean to the root, allowing the edges to come together, concaving the crown from mesial to distal, or from back to front, or convex the other way. In other words, I aim not to allow the two ends to come together, but have a space of that description from the end of the root to the end of the crown, leaving a concave space in between. That is my way of setting a Logan crown. Always grinding it that way.

One way I set that crown this morning: I simply folded a mat of gold leaf—part of a leaf of gold, turning it over and over until I had forty-eight thicknesses. I use anywhere from forty-eight to seventy or one hundred, it don't make much difference, whatever the leaf of gold happens to make. If I want to make the joint a little wider, with gold, or a little heavier, I use more. A leaf of gold is sufficient in quantity to make any good joint for a central or lateral, and probably half to two-thirds of a leaf will give you as much as seventy-five or ninety thicknesses of No. 4 foil in the joint. Get your crown all ground up, ready to set, as you would set it as a plain Logan crown; take a rubber-dam clamp and punch a hole through the mat of gold as you have folded it over and over. As you have the crown ready to set, put a little cement in the root of the tooth and a little on the pin, but not sufficient to have the cement squeeze out between the end of the root and the mat of gold. In setting, I hit it three or four hard raps with a pine stick, driving it up as tightly as possible—as much as the patient will bear, allowing the cement to set thoroughly until hard, holding the crown in position. Then take a sharp knife or instrument and cut the foil off the two ends of the tooth, holding it in the clamp so that it does not tear off at all—that is, trim out as nicely as possible around the tooth, and burnish into the point.—*Western Dental Journal.*

To Prevent Tipping of Bridges.—T. W. Thew.—If one is considering a bridge in the front which looks likely to rotate or be protruded forward, one may often overcome the difficulty by pressing into the service a bicuspid. Even though this may be some distance behind the rest of the bridge, it may be connected with it by a gold bar. The biscupid must, of course, be gold crowned, and the flattened bar must lie along the gum, circling round any intervening teeth without touching them, and be strongly soldered to the bridge. Cases of this kind do exceedingly well.—*Extract Journal British Dental Association.*

Overtaxing Abutment Teeth in Bridge-work.—T. W. Thew.—I think we run a risk of making top-heavy bridges, or, in other words, of putting too many teeth on too few roots. For instance, central incisor roots are said to be strong enough to carry all four incisors, and, of course, for a year or so I have no doubt they would do so, but in course of time, the bridge would be sure to tilt forward by reason of the pressure of mastication. I had a case about two years ago which illustrates beautifully the way bridges move when you think they are quite firm. To supply six front teeth I made two bridges, each from canine to central and carrying the intervening lateral, and cemented them in position, but when I saw the case, about a fortnight ago, a space was developing itself between the centrals, as they were beginning to move outward. Again, we are told that one central root may carry the dummy lateral or its brother central; but one or two cases I have seen treated in this way tended toward the rotating of the supporting tooth and the moving outward of the dummy. The reason of this is, of course, very obvious, and it will occur even when the bite is quite clear, and to prevent it one is often tempted to anchor by means of a bar or catch into the tooth next beyond the space; this looks pretty in the illustrations, but I have seen it working very unsatisfactorily.—*Extract Journal British Dental Association.*

Making of a Bicuspid Porcelain Crown.—W. A. Capon.—The tooth being prepared, a plantinum band is fitted, the joints being lapped instead of butted, enabling it to stand the heat better. After the band is fitted it is shortened to allow for the porcelain of the grinding surface. The buccal surface of the tooth is considerably beveled from the gum line toward the grinding surface to allow for the facing; the front of the band being burnished to this surface, it is removed, and a thin piece of platinum, No. 50 gauge, is placed over the tooth, and the cap pushed to place. While in position, porcelain is packed on the grinding surface, and some on the face, and a thin veneer, made for the purpose, is placed in position; then the whole piece is removed, dried, and baked. Placing it back on the tooth, it is built up to the proper contour, shaped, and baked again. This crown Dr. Capon claims to be in a class by itself for artistic and natural appearance combined with strength. He advocates the use of this crown for abutments for all-porcelain removable bridges, telescoping it over a gold cap made and cemented on the tooth.—*Cosmos.*

RULES FOR FILLING FIRST PERMANENT MOLARS.—R. OTTOLENGUI.—First: The cavity must be extended to the terminals of all sulci.

Second: The filling must me made of gold, if it be possible to insert a perfect gold filling.

Third: The filling must be made of pink gutta-percha, if it be not possible to insert a perfect gold filling. In rare exceptions oxyphosphate may be used.

Fourth: The filling must never be made of amalgam.—*Extract Items.*

FORMALDEHYDE IN PAINLESS PULP DEVITALIZATION.—F. B. LAWRENCE.—On one side of a little piece of asbestos paper place a coating of White's nerve paste, mixing the paste with tannic acid dissolved in sanitol. Then moisten the asbestos with carbolic acid and touch the other side with formaldehyde (Schering, Glatz & Co., N. Y.). Place over the pulp, flow in cement to perfectly seal and you will have a devitalized pulp with little or no pain. If circumstances are such that the patient does not return for days or weeks. or possibly two or three months, there will be no bad effects or pain from the tooth in which such application has been made.—*Western Dental Journal.*

IMPROVEMENT IN RUBBER CUPS FOR POLISHING TEETH.—A. C. CAMERON.—Trusting that it may be of service, I wish to suggest an improvement in the manufacture of hollow rubber cups for polishing teeth. As now made, when the cup is pressed into the wet pumice the air contained inside the cup does not allow the powder to enter, so that on withdrawal of the cup a ring of wet pumice is found only on the outside, where it is not wanted. By punching a hole, about the largest of the Ainsworth punch series, near the mandrel, the trouble is entirely overcome and the strength of the cup not impaired.—*Cosmos.*

NON-COHESIVE GOLD FOR CERVICAL MARGINS.—DR. CRENSHAM.—It is a matter of proof that you cannot rely upon cohesive gold at cervical margins. I think we should seek to find something better. I think with the matrix a safer and better class of work can be done at these margins with soft than with cohesive gold.—*Cosmos.*

GOLD VENEERING.—DR. L. W. FARINHOLT fills the body of the cavity with tin foil, and covers this entirely with a veneering of cohesive gold, making virtually a gold filling with less danger of injury to the pulp from thermal changes.

METHOD OF MAKING GOLD INLAYS.—G. E. HARDY.—A piece of No. 40 gauge 24-karat gold plate is burnished into the cavity, removed and strengthened with 22-karat solder over the bottom. At the same time solder a piece of 22-karat plate in the bottom, which enables you to remove it after the second burnishing without misshaping it. Then place it back in the cavity and reburnish the edges; remove it; paint the under side with whiting; fill the matrix and place it in the cavity, polishing it to fit perfectly. Dr. Hardy claims that gold inlays are especially adapted and indicated on cutting surfaces of anterior teeth, and for large bicuspid and molar cavities.—*Cosmos.*

EDITORIAL

THE OLD AND THE NEW.

This is the last issue of the present volume, and another year will soon begin. That THE DENTAL SUMMARY is fulfilling its mission is manifest from letters of praise and a number of thousand new subscribers received during the past few months. These indications of appreciation are always gratifying to the editor, as well as publisher, and act as a stimulus to greater effort. We have tried to present our readers with a helpful journal, and believe we have done so, for THE DENTAL SUMMARY never was as prosperous as it is to-day. It is our aim to not only keep it first-class, but improve THE SUMMARY wherever possible. The new volume, beginning January, 1903, promises to be the most valuable ever presented, opening with an "*All Porcelain Number*," * containing original contributions from prominent dentists, recognized as leaders in the porcelain dental art.

Following soon after we shall begin a series of original contributions, promised by teachers in recognized dental colleges of America. When leaders in the dental profession take time from their busy life to write articles for the benefit of their fellow practitioners, it insures a treat no dentist can afford to miss. We are thankful we have so many good friends, and feel that THE DENTAL SUMMARY is to be congratulated on being able to present so many meritorious contributions in a single year.

Other special features, now under contemplation, will be presented later.

Altogether, our readers will have a literary feast during 1903.

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*It was the intention to make December the "Porcelain Number," but later it was thought best to begin the new volume with these excellent original articles and so they will appear in the January, 1903, issue.

COMPLIMENTS OF THE SEASON.

Before the appearance of another issue of The Summary the holidays will have come, and we shall have started the voyage of another year. The editor trusts that the same pleasant relations as have been manifested in the past, may continue, and that his service may prove helpful to the thousands who subscribe for The Dental Summary.

He desires to thank you for past courtesies, and to wish you all a merry Christmas and happy New Year.

KEEPING PACE WITH THE PROGRESS OF DENTISTRY.

Although there may have been no radical changes in dentistry during the past year, there has been a general development of methods along various lines, and it is through this continued development, from year to year, that progress in dentistry is attained.

PROPERTY OF
College of Dental and Oral Surgery of New York
302 East 35th Street
New York

Have you kept up with the improved methods advanced, or have you been content to remain in the "old rut," regardless of opportunities offered you to become a more proficient dentist? "Opportunities," you say, "where are the opportunities that have been offered?"

I answer, in dental society meetings; in communion with your fellow dentists; and greatest of all, in the current dental literature.

Far too many dentists are careless readers, or are negligent about reading the journals for which they subscribe, and the result is that before they are aware, some advanced method, published and adopted by others, has been passed unseen by them.

This, continued for a time, makes such men antiquated in certain methods, and still they wonder why it is that Dr. So-and-So accomplishes so much more than they, and in less time.

They neglected to improve their opportunities.

Some men imagine opportunity is something as big as a circus tent, and it cannot possibly escape their notice when it presents. What could be more misleading, especially to dentists. It is the little opportunities that pave the way for progress in dentistry. A little improvement in this line, or a short step of advancement in that: here a little, there a little; that eventually brings about a revolution of old methods.

Go to your files and read over some of the journals, and you will soon be convinced that many a useful suggestion has escaped your notice.

Unless you embrace the small opportunities, you are destined to be behind the times.

It is true there are many ideas presented in our current dental literature that you cannot employ successfully, but if you are a constant and careful reader you will find every month, in the journals, some suggestions that, put into practice, will be the means of either saving you time, labor, or accomplishing better results from operations. A busy man is apt to become negligent of apparently little things, but as a dentist's knowledge is his working capital he cannot afford to neglect that which means so much for his continued success and prosperity.

Attend the dental societies. Read your dental journals regularly and carefully. Approprite everything that will be serviceable to you, and you will find that you are keeping pace with the progress of dentistry.

Otherwise you will find yourselves retrograding.

CORRESPONDENCE

DENTAL AND ORAL PROPHYLAXIS.

L. P. Bethel, Editor THE DENTAL SUMMARY:

MY DEAR DOCTOR: I have read your editorial, "The Results of Dental and Oral Prophylaxis," in the November SUMMARY, with interest and pleasure. You have the distinction of being, so far as I know, the first editor of a dental journal to devote an article to this most important matter. To say that oral prophylaxis is important is too feeble a presentation; it is tremendously important, it is momentous. The more prominent subjects discussed in and by the profession to-day pale into insignificance before it. Our journals are filled with matter growing out of such subjects as "Mending Vulcanite Plates," "The Use of the Rubber Dam," "Treatment and Filling of Roots," "Sterilization of Instruments," "Gold vs. Amalgam," "Professional Ethics vs. Patents," "To Reduce Congestion of the Pulp," "Saving a Tooth 200 Years Ago," "Soapstone," "The Boss' Dream," "Dental Science and Literature," "Report of the Committee," "Extension for Prevention,"—while they are without a page or line upon the subject which vitally affects every class and condition of humanity, namely, "Prevention of Disease in and Through the Mouth." I therefore extend to you my hearty congratulations, Mr. Editor, that you have had the interest to investigate this matter and the courage to present the initial editorial in the line of what is surely, "The True Departure—Prevention," as set forth by A. G. Bennett, D. D. S.

"The merest mention of prevention
Brings out the true ideal,
And each resource and all our force
Combine to make it real.
Like the strenuous life with vigor rife,
With virile force abounding
It has no need of any creed—
It does its own expounding."

I have waited expectantly for recognition of this matter since the publication of the first article on "Prophylaxis in Dentistry," in January, 1899, and another in September, 1900, followed by two article on "Oral Prophylaxis," one in December, 1901, and the other in May, 1902.

These articles have been presented to societies in Hartford, Philadelphia, New York, Cincinnati, Boston and Pittsburg, with something of the results of eight years of experiments, investigations and progressive educational work in practice. The developments are truly wonderful and border almost on the marvelous. The complete arrest of decay in deciduous teeth and practically the same of all new decay in adults; the more perfect alveolar development; the change in color, appearance and structure of the teeth; the return of abnomally sensitive gum tissue to its normal condition of low grade sensibility; the absence of bleeding; the beautiful striation and festooning of the gums, the eradication of all gingivitis and tendency to alveolar pyorrhea, and last, but not least, the extirpation of mouth infection—the most prolific source of chronic disorders of stomach, kidneys and lungs, presents to the dental profession matters worthy of investigation; matters which, when fully understood and developed, will ally medicine to dentistry in a kinship which can never be annulled.

You say, Mr. Editor, "It is the duty of the examiner (of the Match Co.) to make every three months a rigid examination of the teeth and mouth of every employee. This is done systematically and tabulated records made. If any teeth need filling or other operations are to be performed, the employee is so notified and must return with a statement from the dentist certifying that the operations have been properly accomplished and that the teeth are all in good condition. The general condition of the soft tissues of the mouth, especially the gums, is also noted and the employee instructed accordingly. Every employee is obliged to brush his teeth and gums at least once a day and use such mouth-washes and dentifrices as are prescribed by the examiner.

"By the strict supervision over the oral cavity phosphor-necrosis has been almost entirely stamped out, there being but four mild cases at present among the two thousand employees. Here are more than two thousand persons with dental organs scrupulously clean, gums of normal tint, firm and healthy and a clean mouth."

I am sorry that you have not given us a plainer and more detailed description of the prophylaxis treatment these people are subjected to. You have left the impression that the quarterly examination of the dentists-in-charge, the prescribing of certain mouth-washes and dentifrices and having the decayed teeth filled, together with the brushing of the teeth and gums(!) once a day, constitutes the prophylaxis treatment which has produced "teeth scrupulously clean, gums of normal tint, firm and healthy, and a clean mouth," in two thousand employees of a match-factory.

My prophylaxis treatment for the mouth and teeth consists in forcible change of environment at regular intervals, for

"All cloudy conditions strategic positions
And all that forms the environs—
These may be sure much more impure
Than the vilest verses of Byron's.
Of all the states that nature hates—
Which mean eradication—
That fill alone a shadowy throne—
That status is stagnation,"

and the most thorough and complete polishing, by hand methods, of all exposed surfaces of the teeth *once every month*, and by that means alone when supplemented by the efforts of patients, am I able to maintain that much-to-be desired condition which you aptly describe—"Dental organs scrupulously clean, gums of normal tint, firm and healthy and a clean mouth."

You say "You doubt whether there is even *one* dentist in the United States or the whole world having a class of patients with such universally clean and normal appearing teeth and oral tissues as these poor working men, women, boys and girls."

If you will come to Philadelphia (and this invitation is not to you alone, but to the editor of any reputable dental journal, or to any authorized delegation from any dental society in the world), I will take pleasure in showing you not two thousand, but any number not exceeding about one hundred and twenty-five of my patients who have been under the prophylaxis treatment, together with special methods and appliances which I use in this practise. I shall be glad to welcome you at your convenience, hoping to demonstrate the fact that there is at least "one dentist having a class of patients with universally clean, normal, uninfected teeth," teeth having the true tooth color and the appearance of *living organs;* teeth free from decay or any seeming tendency to it. Mouths freed from all infectious matter; gums perfect in color, beautifully striated, and with natural festoons; gums having the normal low grade sensibility, exempt from irritation or any tendency to bleed. There are many points in the prophylaxis treatment which I would be glad to discuss, but time and the already undue length of this letter will not permit. I beg to remain,

Very sincerely yours,

Philadelphia, Pa. D. D. Smith, M. D., D. D. S.

COMPRESSED AIR IN DENTISTRY.

Editor Dental Summary:—I notice in the October number of The Dental Summary, an article by Dr. B. F. Saunders, of Elyria, Ohio, on "Compressed Air in Dentistry."

As no reference was made to me in the article, I take it for granted it was presented and read before the Northern Ohio Dental Society, not only as an original paper, but as an original idea as applied.

Permit me to call the attention of Dr. Saunders and the profession to the fact that I read a paper and gave a demonstration on "The Use of Compressed Air (hot and cold), as Applied to Dental Practice," before the Pennsylvania State Dental Society, at Cresson Springs, July, 1888, covering not only the ground he wrote about, but much more, viz: Its use as a specific in the pretreatment of pulpless teeth or roots (new or old cases), prophylaxis, and as a general means in connection by atomization with germicides in controlling a more general hygenic condition of the oral cavity.

I refer you to *The Dental Cosmos*, or State Society Proceedings of 1888.

Drs. Jack, Darby, Guilford and others of this city have been using it since my paper and demonstration at Cresson Springs, and since that time I have called attention to its great possibilities very frequently before different society meetings.

In the building in which I have my office, I also have three other offices and two dental laboratories. One office is occupied by a rhynologist, who uses it for atomization, and the other by dentists, who use it generally. I furnish a complete compressed air system which has been in successful operation for a number of years, and in my individual office for about twenty years.

But this, like the use of sulphuric acid for cleansing canals and the pretreatment of pyorrheal conditions which will be found incorporated in the same paper, seems to have been written so long ago, that the time it was written was unripe for its general adoption.

Yours truly,

H. C. Register, M. D., D. D. S.

Philadelphia, Pa.

SOCIETY

CELEBRATION OF THE FIFTEENTH ANNIVERSARY OF THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Extensive preparations have been made for the coming dental clinic to be held in Chicago in February, 1903 to celebrate the fifteenth anniversary of the Odontographic Society. It promises to be the largest and best clinic ever held in America. At least five clinicians have been secured from nearly every State in the Union, to demonstrate for the benefit of the profession.

No up-to-date dentist can afford to miss this great treat. Arrange to attend.

INSTITUTE OF DENTAL PEDAGOGICS TENTH ANNIVERSARY.

The tenth annual meeting of the Institute of Dental Pedagogics will be held in Chicago, December 29, 30 and 31, at the Palmer House.

All who are interested in Dental Education are cordially invited to attend. The following program has been arranged:

Papers—"Teaching Operative Procedures," Dr. C. N. Johnson.

"Teaching General Anatomy to Dental Students," Dr. Borland.

"Teaching Electricity and its Dental Uses," Dr. W. A. Price.

"Teaching Embryology," Dr. I. N. Broomell.

"Teaching Applied Physics," Dr. C. V. Black.

"Physical Diagnosis."

A symposium on the "Management of the Teaching of Demonstrators in the Infirmary," by four professors.

Report of committee on "Four Year Curriculum."

Report of committee on "Nomenclature."

All new appliances for teaching must be submitted to Dr. Whitslar, of Cleveland, or Dr. Patterson, of Kansas City.

HART J. GOSLEE, *Pres.*
W. EARL WILLMOTT, *Chairman Exec. Board.*
H. B. TILESTON, *Sec'y and Treas.*

SOUTH DAKOTA EXAMINING BOARD.

The South Dakota State Board of Dental Examiners will hold its next meeting for examination of candidates for license to practice dentistry, at Mitchell, S. D., on Wednesday, January 7th, 1903, beginning at 9 a. m.

All parties wishing to come before the board at this time must make application to the secretary on or before December 30th, 1902.

Candidates are expected to bring operating outfit, filling material and patient.

G. W. COLLINS, *Secretary.*

Vermillion, South Dakota.

AFTERMATH

PERSONAL AND MISCELLANY.

Dr. O. W. Hanson, Lexington, Ky., died from typhoid fever, Nov. 19.

Dr. L. P. Blair, Minneapolis, Minn., died of heart disease Nov. 15th. Age 40.

Dr. C. H. Campbell, Middleport, O., has quit dentistry and gone into the clothing business at Lancaster, O.

Dr. G. V. I. Brown, Milwaukee, made political speeches at Oshkosh and other places during the fall campaign.

Dr. W. C. Fischer, of Fort Wayne, contract surgeon, has been stationed at the barracks in Columbus, Ohio.

Dr. Cora C. Collins, Alabama, Ga., is said to be the only woman in the South engaged in the practice of dentistry.

Somnoform is composed of 60 parts chloride of ethyl, 35 parts of chloride of methyl, and 5 parts of bromide of ethyl.

Missing Dentist Found.—Dr. F. A. Wood, who disappeared from Richmond some weeks ago has been located in New Orleans.

A Dentist Bankrupt.—Dr. C. C. Winfrey, a dentist of Mayfield, Ky., has filed a petition in bankruptcy. Liabilities, $2,245. No assets.

Dentist Kills His Associate.—Dr. Robert J. Blake, San Francisco, was shot and killed by his associate, Dr. Benjamin F. Stoll, October 30.

Born With Teeth.—A son born to Mr. and Mrs. Elmer Wilson, Galesburg, Ill., was found to have two well erupted lower incisors at birth.

The Minnesota Dental Examining Board at its last meeting in October examined twenty-six applicants, twelve of whom passed successfully.

Gone to Porto Rico.—Dr. H. W. Monroe, of Philadelphia, has opened an office in San Juan, Porto Rico, and expects to make that city his future home.

To Powder Camphor.—Camphor should be dampened with alcohol when it is desired to powder it. Then it can be rubbed into an almost impalpable powder.

A Good Combination.—Dr. S. C. Legett, Greenfield, O., has sold his dental office to Dr. Horace Shank. Dr. Legett will give up dentistry and study osteopathy.

Stricken With Paralysis.—Dr. L. C. Fuller, Kansas City, Mo., was stricken with paralysis while at work in his office Nov. 19th. Entire left side of body paralyzed.

SUIT FOR DAMAGES.—Mrs. Annie Brickler, Chicago, has brought suit for $5,000 damages against the Boston Dental Parlors, Chicago, for unsatisfactory bridge-work performed.

BROKE HIS LEG.—Dr. H. S. Tinkham, Fort Wayne, Ind., while moving his dental chair into a suite of rooms, slipped and fell, sliding down stairs, breaking his right leg at the ankle.

DENVER DENTAL SOCIETY, October 10, elected the following officers: President, W. L. Roberts; vice-president, W. A. Brierley; secretary, Frank L. Smith; treasurer, Will P. Smedley.

MAHONING VALLEY DENTAL SOCIETY held an interesting semiannual meeting in Sharon, Pa., Oct. 21. Dr. F. S. Whitslar, Youngstown, O., is president, and Dr. G. B. Speer, secretary.

NEW HAMPSHIRE BOARD OF DENTAL EXAMINERS.—The new members of the dental board appointed are: W. R. Blackstone, Manchester; F. A. Brown, Laconia; G. A. Bowers, Nashua.

NEW MEMBER OF THE MICHIGAN BOARD.—Dr. Charles G. Gray, Petoskey, Mich., has been appointed a member of the Michigan State Dental Examining Board to succeed Dr. F. O. Gilbert.

TRANSVAAL DENTAL SOCIETY.—This newly formed dental society holds its meetings in Johannesburg and has for its officers: W. D. Quinn, Chairman; A. M. Holloway, Secretary and Treasurer.

SOUTHWEST IOWA DENTAL SOCIETY elected officers as follows: President, Dr. J. A. Ross, of Osceola; vice-president, Dr. R. E. Chandler, of Shenandoah; secretary, Dr. J. A. West, of Creston.

SHOOTS HIS SWEETHEART.—In a fit of jealousy Dr. Harry Gulmyer, Elkhart, Ind., shot and serously injured Miss Lulu Barney. He was lodged in jail on the charge of assault with intent to murder.

PECULIAR ACCIDENT.—A piece of iron, dynamited half a mile away, crashed through the window of a dental office in Akron, O., and struck a patient seated in the dental chair fracturing her wrist.

AMERICAN DENTIST EXPELLED.—John W. Meadows, a dentist of Philadelphia, has been fined $50 and expelled from Austria under an old law which prohibits foreigners from practicing dentistry in Austria.

McLEAN COUNTY DENTAL SOCIETY.—This newly organized dental society in Illinois elected F. H. McIntosh, president; John Campbell, vice-president; B. M. Van Dervoort, secretary; D. M. Field, treasurer.

ROCHESTER DENTAL SOCIETY, October 15, elected for president, Dr. F. Messerschmitt; vice-president, Dr. F. Tarrant; secretary, Dr. F. W. Proseus; treasurer, Dr. W. A. Windell; librarian, Dr. W. W. Belcher.

DENTAL SURGEON TRANSFERRED.—Lieut. R. P. Updyke, who has been a dentist in the United States army and stationed at Forth Leavenworth, Kan., has been transferred to line duty at Vancouver Barracks, Wash.

BOGUS AMERICAN DENTAL DIPLOMAS.—The agitation against dentists holding fake American diplomas is being continued, and Consul Worman in Munich has taken legal action against eleven more dentists of this kind.

CHARGED WITH EMBEZZLEMENT.—Dr. George Kreuger, Kenosha, Wis., filed a complaint against Dr. A. W. Hodges, a partner, charging embezzlement. Hodges collected all the accounts possible and left between two days.

ANOTHER DENTAL COLLEGE IN CHICAGO.—The Northern College of Dental Surgery, Chicago, has been incorporated. Capital, $2,500. Educational incorporators, F. F. Tollkusha, A. D. Radcliff, E. F. Neal.—*Chicago Journal, Nov.* 18.

SOUTHERN ILLINOIS DENTAL SOCIETY, October 16, elected Dr. J. W. Barcus, of Carlinville, president; Dr. E. L. Burroughs, of Edwardsville, vice-president; Dr. H. K. Barnett, of Upper Alton, secretary; Dr. T. T. Baker, treasurer.

SHOW-CASE ROBBED.—Some thief broke the glass show-case in front of Dr. L. A. Broring's dental office in Louisville, Ky., and carried away its contents valued at $150. (The best way to avoid such losses it not to have a display.—ED.)

DR. L. G. NOEL MARRIED.—Dr. L. G. Noel, of Nashville, Tenn., President of the National Dental Association, was united in marriage to Miss Augusta Jonnard at Nashville, October 30th, 1902. We extend hearty congratulations and best wishes.

A DENTIST DOPED.—Dr. E. G. Ireland, of Glendive, Mont., disappeared from home and was found in Minneapolis ten days later in feeble condition. He had no idea how he got to Minneapolis or what had occurred. Supposed that he was doped for the purpose of robbery.

AMERICAN PRODUCTS IN FRANCE.—The Paris correspondent of the *New York Tribune*, in a letter states that "There is no reputable dentist in Paris or in the provincial towns without an American made dental chair and American dental instruments made of Amercan steel."

DENTAL OFFICES ROBBED.—The office of Dr. Gustavus North, Cedar Rapids, Ia., was robbed of $200 worth of gold and plate while the doctor was gone to dinner. The office of Dr. William Standish, Mankato, Minn., was robbed of gold, plate, bridges and crowns to the amount of $250.

LONG PREAMBLE.—The Doctor—"I had a tooth pulled yesterday, and I walked past the dentist's office a dozen times before I could summon up the necessary resolution."

The Professor—"It seems to me that was a pretty long pre-amble."

LOSS BY FIRE.—Dr. S. W. Young, Philadelphia, loss $300; Dr. H. D. Wilson, Bainbridge, Ga., loss heavy and only partly insured; Dr. F. M. Lee, Buffalo, N. Y., loss not heavy; Dr. W. H. Holland, Ninety-Six, S. C., loss $1,200, insurance $300; W. F. Krauss, Milwaukee, dental manufactory, loss $700.

AN UNBELIEVER.—Here's a late story anent Christian Science. A Boston mother said to her little daughter:

"If you had my faith, darling, you would have no toothache."

The child replied:

"Well, mother, if you had my toothache, you wouldn't have any faith."

A DENTIST'S INVENTION.—Dr. D. Shaffer a well known dentist of Danville, O., has invented a contrivance that will prove a safeguard against asphyxiation and house-wrecking by natural gas. It is known as an automatic cut-off and when the gas supply is off, a weight, regulated by the pressure, turns off the valve.

SOUTHERN CALIFORNIA DENTAL SOCIETY, at its meeting October 21st, elected the following officers: President, Dr. E. G. Howard, Los Angeles; vice-president, Dr. M. E. Tabor, Riverside; second vice-president, Dr. M. Evangeline Jordon, Los Angeles; treasurer, Dr. J. M. White, Los Angeles; secretary, Dr. L. E. Ford, Los Angeles.

THE UP-TO-DATE DENTIST.—The other day a man went to a dental office where cocaine is successfully used for the painless extraction of teeth. He said: "Doc, I've got a bad toothache and want the tooth pulled without being hurt. Can't you croquet it so it won't hurt me?" The doctor laughed and said: "I don't know that I can croquet it for you, but I'll ping-pong it."

NEW HONORS FOR DR. W. D. MILLER.—Dr. W. D. Miller, an American, professor of dentistry at the University in Berlin, won the golf championship of Germany and Austria, by 2 up, on the Berlin Club's links. Professor Andrew, of Edinburgh University, who is temporarily living in Berlin while studying the German school system, was second.—*N. Y. Herald*.

MUTUAL PROTECTION ASSOCIATION.—The physicians and dentists of Portland, Mich., have effected a permanent organization. The purpose of the organization is mutual protection against people who go from one doctor to another and forget to pay their bills. Such parties will henceforth be placed on a blacklist, but before being thus dealt with will be duly notified and given an opportunity to settle.

SUITED THE DENTIST.—Patient (after having teeth examined)—What do you think of them?"

Dentist—Magnificent.

Patient—Then you don't find anything to do to them?

Dentist—Oh, yes. There are three to be pulled, seven to be filled and five to be crowned.

ONE POINT OF VIEW.—"I wish I had your teeth," remarked young Hardupp to Miss Elderleigh.

"Do you really?" exclaimed the fair and nearly 40 maiden, who scented a compliment.

"I do, indeed," rejoined the practical young man. "Why, there must be at least $50 worth of gold in them."

TO STAMP OUT ILLEGAL PRACTICE.—Dentists of Greater New York have organized and will take steps to stamp out illegal and dangerous practices now in vogue in that city by alleged dentists. The officers of the organization are: President, Julian H. Clark, D. D. S.; vice-president, C. R. Christopher, M. D. D. S.; treasurer, Calvin R. Moulton, D. D. S.; secretary, Edward Cooney, D. D. S., 25 Bond street, Brooklyn.

THIEF A PATIENT.—A smooth-tongued young man entered Dr. Henderson's dental office in Toronto, Can., and told the doctor he wanted some dental work. After examining the mouth the doctor stepped into the laboratory to prepare for an impression and on returning found the young man had departed with a book of gold foil and other supplies. He worked the same game on Dr. Nichols, another dentist of the same city.

PATENTS.—Patents are purely a commercial arrangement, and as such have no business in a profession, but those things which we delegate to the commercial man to prepare for us should be patentable, but there should be no patent on office rights or on anything that must be applied to the human body to complete it. It is on the ground of expediency—what is best between man and man—that the patent right is established.—*Dr. G. V. Black.*

NORTHWESTERN DENTAL ASSOCIATION, October 18, elected as president, John F. Dowsley, Boston; first vice-president, Henry McManus, Hartford, Conn.; second vice-president, Thomas J. Barrett, Worcester, Mass.; secretary, Edgar O. Kinsman, Cambridge, Mass.; assistant secretary, Charles F. Kreppel, Forest Hills, Mass.; treasurer, J. Tenny Barker, Wallingford, Conn.; librarian, Charles H. Riggs, Hartford, Conn.; editor, David W. Johnson, New Haven, Conn.

HARTFORD DENTAL SOCIETY, at its meeting October 14th, elected Dr. J. W. Harper, president; Dr. E. Eberle, vice-president; Dr. E. R. Whitford, treasurer, and Dr. A. W. Cowee, secretary. The executive committee consists of Drs. E. B. Abbey, T. K. Starr and A. E. Carey. Dr. F. D. Clark was chosen librarian and Dr. Charles McManus historian. After the reading of a paper on dentistry in Hartford 50 years ago by the retiring president, Dr. James McManus, there was a collation.

STILL ANOTHER.—*The editor of the Items* accuses the *Digest* of printing stuff of "Dooley's" from the *Chicago American* to pad out its pages. "By the beard of the prophet!" another war will be on.—*Western Dental Journal.*

Better "watch out" Brother Patterson or there will be still another war on, for the *Digest* man will be after the *Western Dental Journal* for *daring* to publish the proceedings of the Missouri State Dental Society when, according to the announcement on its cover, the *Dental Digest* is the "official organ" of that society.

DR. S. B. PALMER, BANQUETED.—Thirty-five fellow practitioners of Dr. S. B. Palmer, of Syracuse, one of the oldest dentists in the State, tendered the veteran a complimentary dinner at the New York Athletic Club Oct. 26. Dr. Palmer, who is 80 years old, has been in active practice for fifty-three years and ranks high in the profession. Dr. John B. Rich, who is 92 and still practicing, told of Dr. Palmer's contributions to dental science as far back as 1846. Other speeches laudatory of the work of the guest of honor were made. Few of the diners were under 70 years and included some of the most noted men in the profession.

Tooth Extraction by Steam.—A man by the name of Marlott, Danville, Ill., was seized with a violent toothache, but having no time to go to a dentist, tied a stout cord to his aching tooth and attached the other end to a locomotive under full head of steam about to start. Marlott hugged a telegraph pole, the engine started, the tooth was extracted. Marlott said the process gave him very little pain and that it was superior to the work of a dentist who would have charged him fifty cents. Should this become a fad among railroad men the dentists would have to inaugurate a new branch of dentistry, that of making artificial jaws.

Pulled Two Teeth for Revenge.—Dr. Dougal was a famous Scotch physician, and as eccentric as learned. One day a man came to consult him, in an agony of pain, and, after an examination, the doctor told the patient he had an ulcerated tooth, and advised him to poultice the jaw. An argument ensued, during which the sufferer cried out: "What do you know about teeth?" At this, the doctor seized a pair of forceps and shouted: "I'll draw every tooth in your head!" The alarmed patient ran out of the house, with the doctor in pursuit, who finally overtook him in the market place, and took out two of his teeth, in the midst of an interested crowd.

"Just Married."—Dr. Thomas A. Lea, Bowling Green, O., to Miss Anna H. Poe, of Fostoria. Dr. H. W. Barton, Akron, O., to Miss Maud Sutherland, Ann Arbor, Mich. Dr. James Hermans, Canandaigua, N. Y., to Miss Alma Besser, Buffalo. Dr. J. L. Crawford, Piqua, O., to Miss Grace White, Dr. C. E. Perkins, Brocton, Mass., to Miss Hattie Snell, of Holbrook. Dr. J. J. Hammond, Galesburg, Ill., to Miss Maude Clawson, Warren, O. Dr. D. G. Colwell, Ithaca, Mich., to Miss Hattie E. Barstow. Dr. J. F. Sortore, Farmington, Mich., to Miss Victorine Casteline, of Belmont, N. Y. Dr. Isaac Burton, Colorado Springs, Colo., to Miss Marie Williams, Dr. A. P. Johnson, South Chicago, to Miss Woodie Davis, Baltimore, Md.

Suit Against Dentists Fails.—Justice O'Gorman of the Supreme Court, New York, dismissed the complaint of Miss Josephine McDonald against Drs. Nelson T. Shields and George F. Jernigan, dentists, and Michael J. O'Connor, expert X-ray operator. She had demanded $50,000 for damages on the ground that the dentists, to whom she had applied for the treatment of an unhealthy jawbone, had caused her to be subjected to an X-ray machine. She alleged that her face had been burned badly, and that her hair fell out. The dentists contended that they were not responsible for O'Connor's operation, and that they merely watched it to obtain the benefit of any light it might throw on the patient's condition. The contention, the Justice said, in dismissing the complaint, was unassailable.

Newspaper Advice.—In an article, in a prominent newspaper, on "the care of the teeth" we read:

"Don't sleep with the mouth open; dust and gritty particles floating in the atmosphere entering the trap thus set for them, injure the enamel of the teeth by irritation."

"Powder containing camphor is perhaps the best, for camphor tends to destroy the animalculae in the secretions of the mouth, whose skeletons or remains constitute the incrustation called tartar."

Is it not about time some committee be appointed from the dental profession to prepare a series of worthy articles on dental and oral hygiene to be published in our prominent newspapers for the benefit of the masses? —Ed.

Died.—Dr. J. S. Hurlbut, Springfield, Mass., November 10th. Cause, apoplexy. Aged 60; Dr. W. B. Maxon, Mobile, Ala., found dead in Kyle house, Montgomery; Dr. T. L. Cobb, Opelika, Ala., killed in runaway accident Oct. 31. Aged 47; Dr. W. P. Ives, Brooklyn, N. Y., died Oct. 31, from overdose of morphine, aged 45; Dr. Alonzo Eldredge, Big Rapids, Mich., died of apoplexy Oct. 28, aged 59; Dr. W. E. Lilliard, San Francisco, found dead in office Oct. 21. Head and face covered by gas tube. Supposed suicide; Dr. F. E. Mix, Hartford, Conn., died in New York Oct. 20, aged 58; Dr. C. R. Boteler, New York, a retired dentist, died Oct. 20, aged 62; Dr. Antoine Saucier, young dentist of Montreal, Can., died Oct. 19; Dr. A. E. Kennedy, Morrison, Ill., died Oct. 3; Dr. L. J. Blanchard, Dexter, Me., died from apoplexy Oct. 10.

Judge Not from the Poorest.—In an address before the dental society at Hull, England, Mr. T. W. Thew paid the following compliment to American dentists:

"The Americans are said to be our tutors in bridge-work, but from the few cases I have seen of American work I gather that they are not scrupulously particular about the fit of their molar and bicuspid crowns. The patient explained to me that the dentist who made the bridge was the only man in the States who could make one or repair it afterwards, and modestly claimed that he held all the patent rights for such bridge-work."

No wonder the crowns did not fit coming from such a dentist as this braggart must have been. Remember there are "cheap Johns" and "quacks" in America as well as in other countries and some of their dental work is a disgrace to dentistry.—Ed.

A Dental Impossibility.—A writer in the *Boston Transcript,* describing "Scrub Oaks," a settlement of undesirable people in southern Massachusetts, tells a tale of the death of one of the residents and the efforts of a frank spoken preacher among them to point a moral. After the reading of a portion of Scripture and the making of a prayer, the biographical part of the sermon began, in which attention was called to the ungodly lives of the "Scrub Oakers" in general, and the deceased in particular with the startling conclusion, "And I have no doubt that the late Mr. W.—— is even now gnashing his teeth in hell." This was too much for old P——, one of the intimates of the departed, and he strode from the church in high dudgeon, and was found at the close of the service excitedly pacing back and forth across the church green and squirting tobacco juice in all directions. Someone asked what he thought of the remarks as to his friend. "Dr. S—— has told a blank lie," says P——, "for I know for a certainty that the old man hasn't had a tooth in his head for over twenty years!"

Dental Examiners Dined.—A complimentary dinner was tendered the members of the Illinois State Board of Dental Examiners Oct. 18, by 150 Chicago dentists. The banquet was in celebration of the victory won by the board in the court decision against diplomas improperly issued. Dr. C. E. Bentley introduced the toastmaster, Dr. R. N. Lawrence, of Lincoln, Ill. Those who responded to toasts were Dr. Charles Chittenden, Dr. C. Koch, Judge John Knickerbocker, T. W. Pritchard, J. M. Crouse, Dr. Don M. Gallie, and Dr. James Weirick.

A Dental Advertisement.—Our Paris correspondent calls attention to the fact that one need not go so far abroad as Tokio to find curious specimens of dental English. In Paris—city beloved of English and Americans, where one's best efforts at the language are met in many a shop by a polite reply in English—we find an advertisement scattered broadcast which states that at a certain dental office, "On parle Francais, Anglais, Russe, Polonais, Italien, Espagnol, Portugais, et Allemand;" and the modest linguist's English paragraph reads as follows: "It is quite unnecessary to extract the teeths with the new system discovered by the American doctor. New application made by electricity at each operation without and danger and sufferings. Set of teeths aluminum-enameled strong and solid weighing 3 gramm. Without springs and hooks. The teeths cannot moving in speaking nor eating. The word, the voice, nor the smell are touched. Appearance of artificial teeth cannot be seeing at the mouth's examen. All are entirely hygienic; each part are accessible to the brush—any particule of food cannot stay in the interstices; by this mode they occupied the place of exactly natural teeths and stay much longer time that any system of artificial teeths."—*Ash's Quarterly.*

How He Broke His Teeth.—Dr. G. B. Houston, Willow Springs, Mo., sends the following and vouches for the truth of it. In 1899 he made an upper plate for a German by the name of Lutzen. The latter part of October Mr. Lutzen appeared at Dr. H.'s dental office and the following conversation took place:

Doctor—"Good morning Mr. Lutzen, what can I do for you?"

Mr. L.—"Vell dat blate he was proke."

Doctor—"Yes; well I can soon fix that. (Looking at plate.) Why, how is this; seven teeth broken and the plate cracked? How did you do it?"

Mr. L.—"Vell, aboud tree months I proke him first."

Doctor—"How?"

Mr. L.—"Eadin bie."

Doctor—"Eating pie, eh? Did you break one tooth at a time?"

Mr. L.—"Yaw; yust vun at de dime."

Doctor—"How did you break the next one?"

Mr. L.—"Yust eadin bie."

Doctor—"Just like the first one?"

Mr. L.—"Yaw!"

Doctor—"How about the others?"

Mr. L.—"Yust de same, eadin bie."

Doctor—"Do you mean to say that you broke these teeth one at a time and broke each one of them just eating pie?"

Mr. L.—"Yaw, dots righd, yust eadin de sofd bart fon bungin bie."

Doctor—"How did you break the plate?"

Mr. L.—"Yust de same, but mine vife she vas de gause fon dot. She make de bie vot you call him, burned him, dots id, unt I bid indo de outside on de burned side unt proke him."

And the old German stuck to it that he had broken the seven teeth and the plate eating pumpkin pie.

Office Rights.—When will dentists not bite at office rights? When will dental journals not assist such fakes? In the second issue of the *American Dental Journal* appears an editorial advertisement for Dr. Carmichael's *system* of crown and bridge-work. A nice way to open the first volume of a journal! It is rather an apology for Carmichael, because it says he teaches the dentist how to do the trick for fifty dollars, while, as a real matter of fact, Carmichael has his method patented, he says, and sells you office rights for one year or for perpetuity. Is this teaching? What a jolly! There is nothing to the system and at its best it is not much better than swinging bridges on open-faced crowns, *e. g.*, grind the lingual cusp of a molar or bicuspid away considerably to allow for two thicknesses of gold, and cut a groove deeply through the sulcus and down the mesial and distal surfaces, burnish pure gold into this groove and over the ground portion and then sweat 22 karat plate to this to make the proper contour, thus the abutment is made so that no gold shows on buccal surface. Fifty dollars, please! This is the same Dr. George Evans, of New York, demonstrated at the practitioners' course four or five years ago in Toronto. It is whispered round that Carmichael found takers in Toronto. Doubtless these were the men who didn't think it worth while to attend Dr. Evans' course. It didn't cost enough. As usual in such cases, a long list of testimonials was presented. A personal letter of a prominent professor in a Western dental college was "judiciously displayed," using the words of the Niles' Michigan Hospital fake. Does anyone suppose this gentleman paid his fifty? Not much—he gave his testimonal, and suckers were caught. "A sucker is born every minute."—*P. T. Barnum.* What's next, and who's next?—*Editorial Dominion Dental Journal.*

Recent Patents of Interest to Dentists.—

711052—Top for tooth powder bottles or cans or other containers, Henry B. Kent, New Brunswick, N. J.

711324—Artificial denture, Wm. P. Lacy, South Boston, Va.

711340—Dental mandrel, George J. Paynter., Philadelphia, Pa.

711075—Tooth brush, Frederic T. Rench, Laporte, Indiana.

711827—Electric heater for dental purposes, Julius Cook and J. M. Pumerville, Michigan City, Indiana.

712057—Dentist's electrical annealing furnace, Natnan K. Garhart, Indianapolis, Indiana.

712057—Tooth crown, Charles P. Callaway, Glen Jean, W. Va.

712526—Dental filling tool. Perry C. Hammersmith, Buffalo, N. Y.

712813—Dental Plugger, Frederick W. Korb, Cleveland, Ohio.

712576—Dental instrument, John F. O. McMath, Oakland, Cal.

712701—Hot water obtundent hand-piece, Alvin F. Merriman, Jr., Oakland, Cal.

712705—Porcelain facing for crown and bridge-work, Wm. H. Mosley and H. G. Robb, Midland, Canada.

712716—Dental engine, Oscar H. and A. F. Pieper, Rochester, N. Y.

713040—Dental bridge-work, Emory L. Townsend, Los Angeles, Cal.

713041—Dental band-fitting instrument, Emory L. Townsend, Los Angeles, Cal.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Aphorisms for the Dentist.—I am taking the liberty of introducing some aphorisms ascribed to Amadee Latour, which, I hope, may be instructive and applicable to the practice of dentistry, as well as medicine:

1. Life is short, patients fastidious, and the brethren deceptive.
2. Practice is a field of which tact is the manure.
3. Patients are comparable to flannel—neither can be quitted without danger.
4. The physician who absents himself runs the same risks as the lover who leaves his mistress; he is pretty sure to find himself supplanted.
5. Would you rid yourself of a tiresome patient? Present your bill.
6. The patient who pays his attendant is but exacting; he who does not is a despot.
7. The practitioner who depends on the gratitude of his patient for his fee, is like the traveler who waited upon the bank of a river until it would finish flowing, that he might cross to the other side.
8. Modesty, simplicity, truthfulness, cleansing virtues everywhere but at the bedside and in the office. There, simplicity is construed as hesitation; modesty, as want of confidence; truth, as impoliteness.
9. To keep within the limits of a dignified assurance, without falling into the ridiculous vauntings of the boaster, constitutes the supreme talent of the physician.
10. Remember always to appear to do something; above all when you are doing nothing.
11. With equal, and even inferior talent, the cleanly and genteelly dressed practitioner has a great advantage over the untidy one.—*R. H. Strong in Australian Journal.*

School Dentistry in England.—A London correspondent for an American daily, says: "The School Dentists' Society is making an effort to interest the teachers in the necessity of preserving the teeth of the young. Investigation of the condition of the teeth of school children reveals a lamentable condition of affairs. It is affirmed that of the 17 per cent. of the children absent daily from elementary schools a considerable proportion is due to mental trouble that could be prevented by proper dental supervision, or to disease of other organs for which dental disease is wholly or partly responsible.

"An examination of 10,500 children of an average of 12 years in Poor Law schools and reformatories showed that among them there were 27,000 unsound teeth. But the evil is not confined by any means to the children of the poor. A number of the most important schools under the local government board in the metropolitan district are already provided with qualified dentists, and the School Dentists' Society now suggest that the National Union of Teachers should interest themselves in the question of appointing public dentists for the periodical examination of children's teeth, with a view to arresting troubles that may arise.. It is urged that dental disease is a serious hindrance to educational work, while it entails needless pain to the individual and heavy loss to the nation, a sound an efficient citizen being a valuable national asset. The regulations issued by the medical department of the admiralty lay down that seven defective or deficient teeth in persons under 17, or ten in persons above that age disqualify them from entering the service. In the case of candidates for commissions in the army the loss or decay of ten teeth is considered a disqualification, while, as regards a recruit, it is prescribed, 'that he possess a sufficient number of sound teeth for efficient mastication.' A large number of would-be soldiers are, as a matter of fact, rejected on account of the condition of their teeth."

More Kind Words for The Dental Summary.—I am a recent subscriber to The Dental Summary and I voluntarily wish to state how well pleased I am with the journal. It is just what its name implies, a journal of practical dentistry. The artcles are brief and *thoroughly practical*, such as the busy practitioner wants. The "Suggestions" are superb. It has been my custom for several years to cut out all useful short articles from my dental journals and paste them into my "Dental Scrap-book" for easy and frequent reference. I have quite a number of them now. Inasmuch as I am desirous of using *nearly all* of your "Suggestions" in the November issue of The Summary it is going to be a question as to how I can continue this practice with your journal and save all the useful material.

With best wishes for the success of your very excellent journal, I am

Yours very truly,

Canmer, Ky., Nov. 14th, 1902. J. L. Sutphin.

Dear Doctor Bethel.—I appreciate your efforts in making The Dental Summary the leading dental journal of today.

I think it the best for the busy dentist because it is neat in appearance, concise in expression, practical in ideas and an incentive to higher ideals.

Yours respectfully,

Scio, Ohio. R. D. Wallace.

PUBLISHERS' NOTES

THE DENTAL SUMMARY has increased its subscription list 300 per cent during the last year and the end is not yet. The plans already outlined for 1903 and 1904 are such that will bring THE SUMMARY into very great prominence.

Good dentists are neither born nor made. They owe their ability to study, practical experience and a highly cultivated supply of common sense.

The duller the time the more need to attend dental society meetings; to post up on late methods.

Dr. B. Bannister has greatly improved the chart used in connection with his Register. It is possible now to register fillings on any surface by the use of numerals.

There are a great many ways for a dentist to advertise, but no one has ever improved on the good old-fashioned way of doing good work.

A college graduate never realizes how much there is he doesn't know until he reads a page or two of an Encyclopedia.

The November number of THE SUMMARY contained an error in the advertisement of The Buffalo Dental Manufacturing Co., Page 7. This advertisement should have read *"One Hundred Per Cent Perfect* is the record for *Forged Steel Cross Bars and Caps,* as supplied on the Lewis Vulcanizers." A good record for a good vulcanizer made by a good house.

The dentist who coldly turns down a traveling salesman very often shuts off a flow of ideas which, while they may or may not be good, are cheap.

The Chicago College branch of the Ritter Dental Mfg. Co. has been moved to larger and better quarters. The new location is corner Lake and Dearborn streets, Chicago, Ill.

The dentist who never attends a dental society meeting can generally be heard above the entire anvil chorus insisting that it doesn't pay to.

"Getting back" at your competitors is poor policy unless it is done by doing better work.

The Electro Dental Mfg. Co., 122 South 8th street, Philadelphia, Pa., manufacture two articles of very great convenience, aside from their motors. We refer to their Electric Water Heater and Electric Sterilizer. We cannot give a full description, but we think any dentist who has the electric current in his office will want them. If you think you do not want one just write the company and mention The Dental Summary. You will get a fine catalogue that will compel you to change your mind.

Every subscriber to The Dental Summary becomes a stockholder. His money goes to its improvement.

The Kerr Dental Mfg. Co., of Detroit, Mich., is in the market with "the first Anatomical Crown and Bridge Articulators." It registers the movement of the jaw, giving the lateral, protruded, and the other movements accurately. It has other features that commend it.

One dissatisfied patient may not seem of much importance, but the consequence may be far-reaching in undermining your business.

We believe if there is anything a dentist needs more than another it is some simple inexpensive exerciser. The Paraca Rubber Co., 131 Euclid avenue, Cleveland, Ohio, has one that meets the above requirements. We believe this concern would send literature if you mention The Dental Summary when you write.

No one can succeed as a dentist unless he has the ambition to succeed.